✓ 605 P54
v.48

BOILERS—Continued. Page
—Evaporation per pound of coal .....‡283
—Evaporation tests show effect of cleaning boiler 396
—Evaporative test of heating boiler, Making .....‡283
—Explosion at East Columbus, Ohio..... 475
—Explosion at Gulf Mills, Penn..... 547
—Explosion at Newcastle, Penn..... 547
—Explosion at Rillton, Penn. 547
—Explosion at Selbyville, W. Va..... 109
—Explosion at Stillwater, Penn..... 617
—Explosion in Detroit injures four 757, McCabe *775 784
—Explosion in Henderson County, Tenn.. 325
—Explosion in St. Charles, Penn..... 403
—Explosion near Corfu, N. Y..... 475
—Explosion near Hansell, Iowa 475
—Explosion near Memphis, Tenn..... 475
—Explosion near Peggs, Cherokee Co. Okla. 403
—Explosion near Prairie Du Chien, Wis... 475
—Explosion north of Shreveport, La..... 511
—Explosion of locomotive boiler at Columbus, Ohio 687
—Explosion of locomotive boiler at Lebanon, Penn. 581
—Explosion of locomotive boiler near Castleton, N. Y. 475
—Explosion of valve in boiler room..... 937
—Explosion, Proving cause of 57
—Explosions in waste-heat boiler settings, Preventing. Standiford 304
—Explosions, Liability in case of boiler. Sherlock 648, Banger.....*701
—Factor of evaporation, equivalent evaporation and boiler horsepower.....‡719
—Failure of crossboxes in water-tube boilers *464
—Federal Boiler Inspection Act 278
—Feed water, Mechanical control of boiler 675, *678
—Ferrochem feed-water treatment *739
—Firing low-pressure boilers. Coleman... 837
—Flue-gas analysis, How to make a. Hays *796
—Flush front vs. overhung front boiler setting *165
—Foaming and priming .....‡283
—Formula for longitudinal joint of boiler shell .....*‡211
—Foxboro-Heath CO_2 recorder.....*946
—Fuel Economy in Boiler Rooms, Maujer and Bromley †653, Erratum 865
—Fuel economy in the Singer Bldg. King 710
—Fuel waste *619, The boiler-room scales 785
—Generation of heat from bituminous coal and its absorption by the boiler. Misostow *898
—Girth seams, Use of lap joints for.....‡101
—Graphic method of determining size of safety valve. Gauss *414
—Grooving of boilers .....‡575
—Ground caused boilers pitting 394
—Hammer in boiler-feed line, Prevention of ‡317. Keeping check valves from hammering 499
—Hard and soft boiler patches .....‡609
—Head, Largest single-piece boiler.....*917
—Heads, Supporting effect of boiler 98, *171, 210, Criticism 358, 314.....642
—Heat balance of boiler.....‡175
—Heat losses from pipes and boilers, The conservation of. Bagley.....*932
—Heating-plant boilers, Proper firing of. Alt. *662
—Height of return-tubular boiler water gages .....‡467
—Horsepower-hours from metered condensation .....‡965
—Horsepower of locomotive boiler.....‡859
—Injector as spare boiler feeder..... ‡25
—Injury to boilermaker 167
—Inspection, Need and value of boiler. Taylor 389, 391. Appreciation 715
—Inspector, Observations of a boiler..... 891
—Instruments for the boiler room..... 180
—Internal feed pipe scaled up 643, 787, 929
—Joint, Efficiency of double-riveted lap...*‡65
—Joint, Efficiency of quadruple riveted *‡645. One method of failure.....*‡789
—Joint, Efficiency of single-riveted lap..*‡211
—Joint, Superiority of butt and double-strap over lap .....*‡895
—Joint, triple-riveted, Efficiency of butt and double-strap .....*‡541
—Joints, Advantages of butt-strap over lap.‡137
—Large water-tube boilers 289
—Leak in cast-iron heating boiler, Development of .....‡541
—Lightning explodes boiler *281
—Longitudinal shell seams of vertical boilers .....‡175
—Marine boiler plant, New..... 109
—Maximum allowable working pressure for cylindrical shell .....‡363
—Maximum size and working pressure for lap-joint boilers ..... ‡25
—Measuring the Temperature of Gases in Boiler Settings .....†511
—Members of A. B. M. A. able to supply boilers for Emergency Fleet 174
—Meters and gages in boiler operation. Uehling 842
—Minimum Thicknesses for h. r. t. boiler shells and heads .....‡211
—Now don't be foolish *291
—Oil out of boilers, Keep..... ‡ 95
—One life lost when boiler tube burst. ..*410
—Ontario boiler inspection office *698
—Operation of forced-draft equipment. Tutein 554
—Paint for steel boiler fronts..... 298

BOILERS—Continued. Page
—Patches, Relative advantages of diagonal and horseshoe boiler. Furr *943
—Pennsylvania boiler rules modified 616
—Pitting and corrosion from apparently good feed water .....‡317
—Plastic refractory boiler baffles ..243, *394
—Pocket in steam connection to water column *818
—Power from the standpoint of the boiler room, Development of. Hirshfeld....*284
—Power required to feed a boiler..... 375
—Projection of water tubes through headers .....‡397
—Relieving boiler attendants of feed-water regulation 675, 678
—Removing scale from water-tube boiler.. ‡65
—Renewing a water-tube boiler header. Black *423
—Renewing tubes, headers and baffles in water-tube boilers. Davis.....*584
—Repair job, An unusual.....*500
—Rivet heads, Proportions of boiler.....*‡317
—Safe working pressure for steam boilers. Gauss 772
—Safety and conservation. Snyder.....*477
—Safety suggestion for the boiler washer.*499
—Salary increases for Federal boiler inspectors 73
—Saving coal in the boiler room..... 675
—Saving due to soot cleaner 348
—Saving money in the boiler room 535, *542, 606
—Scale prevention, Boiler..... 852
—Setting, High boiler 133
—Setting radiation and air leakage, Boiler, Hight *953, 959
—Settings air-tight, To render 289
—Shell, Required thickness for 72-in. diameter boiler .....‡755
—Side-wall clinker prevention *598, 753
—Single and double shear of rivets.....‡175
—Size of boiler for given indicated power, Rated .....‡821
—Slippage of joint not sign of weakness, Moderate .....‡645
—Smokeless combustion with chain grates. Marsh 544
—Something about hand-firing *50
—Soot blowers for horizontal water tube boilers *2, Blowers for vertical and hollow stay-bolt boilers *222, Soot removal from fire-tube boilers.....*305
—Staybolts, Cutting out. McNamara....*122
—Stayed heads, Allowable pressure for... ‡25
—Steam-boiler regulation and control. Straub *442
—Stets boiler-feed controller—Correction.. 240
—Systematic boiler-room operation. Straub.*923
—Table of B. t. u.'s per boiler horsepower at various efficiencies. Bromley 46, Errors in table and chart for estimating fuel requirements *538
—Testing, Something about boiler.....*490
—Tube ends of fire-tube and water-tube boilers ..... ‡25
—Tube, Explosion of boiler 154
—Tube failure in water-tube boilers 134, Dale 942
—Tube failures, Some causes of boiler. Cederblom *43
—Tube-hole cleaner, Triple-blade *800
—Tubes, Keeping record of boiler.....*100
—Tubes—The way they go *836
—'Ware the second-hand boiler!..... 926
—Waste due to excessive noncombustible in coal. Shoudy *682. High ash content in coal 788
—Watching the steam plant. Duffy..... 390
—Water level, Different.....573, 786
—Water-softening plant, Home-made. Odell *728
—Welded headers on water-tube boilers, Safety of..... 936
—Welding boiler plate, Are there advantages in? Boyd.....*504
—Who does better?.....*540, *716
—Why does the water disappear? 315, 608, Power plant generalities..... 607
—Why you should insulate that bare pipe. Bromley 626
—Yarway blowoff meter *532

Boilermakers be licensed, Should? 893
Bolts in crank bearing wedges 680
Bookkeeping and Cost Accounting for Factories. Kent .....†255
Boyd. Are there advantages in welding boiler plate? *504
Brady steam-jet ash conveyor.....*201
Brady traveling-grate stoker.....*166
Braley. At the switchboard in war time..*905
Brass and copper articles, Silvering 510
Brass, Recipe for polishing 402
Brayton. Graphic method of chimney design *349
Brine, Specific heat of .....‡433
British steam-power economies 723
B. t. u.'s per boiler horsepower at various efficiencies, Table of. Bromley 46, Errors in table and chart for estimating fuel requirements *538
Bromley. Table of B.t.u.'s per boiler horsepower at various efficiencies 46, Errors in table and chart for estimating fuel requirements *538, Boiler settings —multiple-retort underfeed stokers *112, The uptake damper 601, Why you should insulate that bare pipe 626, Fuel Economy in Boiler Rooms †653, Erratum 865, A short talk on boiler efficiency *668, few facts about water the operating engineer should know them.....*906
Brown, Inspector, Visits of. Terman 153, *200, *231, 268 (Criticism 313), Appreciation 429).....*704
Brownlie. Coal saving by the scientific control of steam boiler plants 822, Edit.... 815
Buck, Passing the. Strohm.....*111
Buckeye-Barrett oil engine *239
Buffalo General Electric Co., Organization charts *87
Bureau of Chemistry—Prevent Grain Dust Explosions and Fires.....†183
Bureau of Mines—Poster to the fireman *30, Bulletins 217, 547, Bulletin on Analyses of Coal †217, Diffusion of Oxygen Through Stored Coal †439, A Convenient Multiple-Unit Calorimeter Installation. Davis, Wallace †475. Paper No. 144, †511. Measuring the Temperature of Gases in Boiler Settings †511, Recovery of Gasoline from Natural Gas by Compression and Refrigeration. Dykenma †547, Fusibility of Ash from West Virginia Coals. Selvig 566. How To Burn Coal at Home 576. Saving Coal in Boiler Plants †581. Weights of Various Coals †581. Efficiency in the Use of Oil Fuel. Wadsworth †725. The Diesel Engine: Its Fuels and Its Uses, Haas †725. How To Improve the Hot-Air Furnace. Baker †759. Notes on Lignite—Its Characteristics and Utilization. Darling †759. The Fusibility of Coal Ash. Fieldner, Hall, Feild.....792
Bureau of Standards—Copper †147, Circulars of the Bureau of Standards †217, †255, Revision of National Electrical Safety Code 509
Burner, Palmer forced-draft *387, Air above the fire 463
Burner, Ray fuel-oil *167
Burning fuel oil 97, 394
Burning the low-grade coal of Iowa, Marsh *940
Burton soot blower *222

C

Cabinet, Steel switching.....*526
Cable, One way of splicing elevator.....*715
Callan. Lubrication of air-compressor cylinders 229
Calorimeter Installation, A Convenient Multiple-Unit. Davis, Wallace.....†475
Canadian Asso. Stationary Engrs. *70
Candid chat *185
Carbon-dioxide recorder. Foxboro-Heath..*946
Carling turbo blower *774
Carpenter, G. W. Saving water and conserving coal 577
Carpenter, J. S. Safe load on I-beam by rule of thumb 454
Carrick furnace system *907
Cars, Coal or: which?..... 427
Case. Hand control for forced-draft blowers*228
Cast iron at high temperatures.....*120
Catalogs, Standard sizes for..... 108
Cedar Rapids big steam plant.....*478
Cederblom. Some causes of boiler-tube failures *43
Cements for various purposes..... 265
Central Argentine Railway, Electrification of the *550
Central Station List, McGraw .....†617
Central station vs. isolated plant:
—A fair attitude 208
—Always include the heat..... 395
—Another fuel administrator plays the central station's game..... 168
—Central station service or isolated plants for the industries..... 889
—Chicago situation explained, The 422
—Commercial value of exhaust steam, Ruck 614
—Coöperation of public-service and isolated plants. Evans 88
—Fuel Administration's attitude toward the isolated plant (letter 58).....59, 174
—Lumber Exchange Bldg., Chicago, buys summer current 252, 422
—Manhattan Building plant, Twenty-seven thousand dollar saving in 918, 925
—Nothing else to the game 169
—Pot, The, called the kettle black..... 926
—Reasonable charge for off-peak electric current 275
—Self-hypnotism, An example of 131
Chamber in pipe line, Settling *855
Chance, Here's your. Strohm.....*515
Charleston-Nitro transmission line completed 139
Chart for comparison of actual with guaranteed air leakage *869
Chart for finding chimney diameter or area, etc. *350
Chart for finding contents of horizontal cylindrical tank, Alignment. Szabo *266
Chart for finding factor of evaporation. Szabo. *702
Chart for finding the size of safety valve, Alignment. Gauss *415
Chart from steam-flow meter *846
Chart, Fuel performance, for power plants. Rosencrants *712
Chart made by the Yarway blowoff meter..*532
Chart, Power-station organization.....*118
Chart, Pressure, from boiler with new Jones stoker *840
Chart—Record of water level in reservoir..*817
Chart—Record shows when pop valve blows*929
Chart relating boiler and furnace efficiency and fuel consumption *538
Chart showing by dotted lines the variation in furnace temperature *600

Page

Chart showing weekly coal consumption...*955
Charts, Organization, Buffalo General Electric Co. *87, Commonwealth Edison Co..*164
Charts, Ringelmann's smoke grading.....*663
Charts, Steam-pressure and CO_2, hand firing, Iowa coal *540, *716
Charts with and without individual dampers, Temperature and draft. Straub...*442
Chemical patents—Another Teutonic boomerang 604
Chicago conservation meeting 864
Chicago, Disastrous flywheel explosion at *516, 535, Did flywheel explode at normal speed? *752, 754
Chicago situation explained, The 422
Chimney. See also "Stack."
Chimney, A 525-foot brick.....*808
Chimney capacity for greater height, Increase of .....‡65, ‡609
Chimney design, Graphic method of. Brayton *349
Chimney losses, Apparatus for the direct measurement of 854
Chimney temperature by use of draft gage, Finding. Purcell *844
Chimney, Vibration of concrete 706
Chimneys, "Stack gun" for cleaning 694
China, South, The power-plant problem in. Wilson 747
Chisel, Hardening and tempering a 142
Chisel, The cold. Lucas *838
Cincinnati, Plants and places in *351
Cincinnati's new generating station *337, 25,000-kw. turbine damaged in new West End Station *425
Circuit-breaker, Making temperature trip the 310
Civil Service examinations—New York Municipal 34, Examination for position with West Chicago Park Commissioners 581, Examination for petroleum technologist.. 685
Clamp to hold damper in position.....*961
Cleaner, Oakite waste *424
Cleaning deposit from economizers..... *61
Cleanliness and order in the plant, Jahobart 590
Clement, Making coils for small windings. *130
Clinchfield Portland Cement Co.—Difficult boiler installation *607
Clinker from furnace walls, Loosening....‡821
Clinker prevention, Sidewall *598, 753
Clinkering: Its causes and prevention. Saller 335, 501
Clinkering of furnace walls, Preventing.... 890
Clock, Master — Maintaining constant frequency *90
CO_2. See "Carbon dioxide." "Gas, flue."
Coal—A fuel-saving experience. Ball..... 659
Coal, A lump of 766
Coal—A short talk on boiler efficiency. Bromley 668
Coal, A small plant saves much..... 572
Coal, Advantages of using washed.....‡433
Coal—America's energy supply. Steinmetz. 364
Coal—An example of self hypnotism..... 131
Coal and iron conservation, Stoker installations as agencies in 602
Coal and its absorption by the boiler, Generation of heat from bituminous. Misostow *898
Coal and the possible saving, Bituminous.. 432
Coal—Anthracite and bituminous efficiency 30
Coal—Appeal to Department force to economize in fuel 178
Coal as fired in a low-pressure steam-heating boiler, Dry and wet 251
Coal ash, The fusibility of. Fieldner, Hall, Feild 792
Coal at home, How to burn 576
Coal at Moosecheart, Ill., Storing..... *76
Coal at the Melco power plant, Handling..*945
Coal at the mines, Saving. Thomas..... 879
Coal—Better firemen 356
Coal, Bituminous, and coke substituted for anthracite 217
Coal—Bituminous production drops..... 969
Coal — Boiler-room efficiency. Blackburn 437, Errata 605
Coal—British steam-power economies..... 723
Coal, Burn screenings now and store lump.. 60
Coal by use of daylight, Saving 612
Coal—Commercial value of exhaust steam. Ruck 614
Coal conservation in the boiler room. Kuss.*322
Coal conservation, Massachusetts plan of power-plant inspection and. Hawley.... 302
Coal—Conserving heat outside the boiler room 570
Coal containing excess of moisture, Payment for .....‡719
Coal—Coöperation of public-service and isolated plants. Evans 88
Coal costs increased, Plant..... 289
Coal—Curves showing average total production in three years 181
Coal—"Daylight Saving" facts 724
Coal—Dealer fined for delivering full requirements to certain customers..... 722
Coal, Defective mining methods have resulted in loss of 324
Coal, Diffusion of Oxygen Though Stored. Katz .....†439
Coal docks in New Jersey said to be in condition 640
Coal, Economic effects of impurities in ... 102
Coal—Elimination of superfluous lighting and power plants in Illinois 217, Unify power to save coal 250
Coal, Every houseworker can help save....5
Coal fields Aged retired miners return to work in the 181
Coal—Free energy found! 94
Coal-Fuel Administration's distribution plan 34, Attitude toward the isolated plant 59 (letter 58), 174, Power-plant efficiency campaign 72, Profiteering in coal 73, Recommendations 92, Boiler settings—multiple-retort underfeed stokers. Bromley *112, Regulations concerning clean coal 142, Another fuel administrator plays the central station's game 168, Nothing else to the game 169, D. W. Cooke, fuel administrator for New York 182, Permit required for building new plant, etc. 215, Power unification and utilization in Illinois 250, Joseph Harrington administrative engineer for Illinois 252, 325, Examination of costs of coal mining 356, Those who will help conserve fuel *359, Fuel Facts 367, Great fuel saving in Connecticut 400, Limit on coal storage 400, Chicago situation explained 422, Bituminous coal and the possible saving 432, What about your plant rating? 462, Fuel regulations 471, Large saving of coal in power plants 474, Price allowances on emergency deliveries 474, Great win-the-war meeting 474, Revision of storage regulations 508, C. A. Graves, administrative engineer for New York State 511, Total coal saved as result of daylight-saving 574, Fuel oil and coal conservation meeting at Chicago 617, Increased storage authorized 652, Desires catalogs of dealers in power-plant accessories 686, The effort begins to bear fruit 714, Fuel saving by industrial plants 723, D. M. Myers' letter 751, Weekly letter plan to aid coal conservation in Illinois 757, The rate of combustion 782, Will the saving continue? 783, 855, Radiation losses from steam-heated surfaces 814, Shall the work of the U. S. Fuel Administration be continued? 815, Maximum price fixed for steam sizes of anthracite 827, Photograph *831, Boiler scale prevention 852, Chicago conservation meeting 864, Dr. Garfield resigns 865, Keep up the good work of the Fuel Administration 936
Coal—Fuel and its economical use. Uehling 779, Combustion in its relation to boilers 804, Controlling efficiency of combustion 921
Coal—Fuel saving in the home 403
Coal—Fuel situation in New England. Main 508
Coal Gas in the Central States Using Low-Sulphur Coal from Illinois, Indiana and Western Kentucky, The Manufacture of Retort .....†759
Coal-gas trouble from banked fires, Avoiding .....‡789
Coal, Guarding the quality of. Cole....*18, 19
Coal-handling conveyor, Godfrey *766
Coal-handling equipment, Producer.....*950
Coal, Handling roundhouse *372
Coal—He didn't have to 392
Coal, Helps toward saving 825
Coal—Hold-up men still at work..... 132
Coal, How have you saved? 498
Coal in Boiler Plants, Saving. Kreisinger..†581
Coal in Railway Locomotives, The Economical Use of.....†759
Coal in the boiler room, Saving..... 675
Coal—Interesting fuel tests 624
Coal, Iron pyrites in the 713
Coal—Lens region much damaged 711
Coal—Let's have your story..... 605
Coal, Making an impression on the waster of 714
Coal—Maximum fuel-saving coöperation needed 96
Coal—Mines closed by Fuel Administration 854
Coal mines in Pittsburgh district first to receive power 439
Coal, Motion picture to show methods of saving 826
Coal, Needless lights waste 638
Coal—New York has official ice breaker.. 580
Coal—No profiteering through increased price of anthracite 750
Coal of Iowa, Burning the low-grade. Marsh *940
Coal—Only 33 per cent. combustible..... 392
Coal or cars: which? 427
Coal pile, Friction and the. Morrison.... 129
Coal-port facilities ready, Are the?..... 498
Coal, Power-plant changes that saved. Remlieu 695
Coal preparation and coal sizes. Monnett.. 108
Coal—Problems involved in fuel changes. Bement 380
Coal production, Drafting mine workers reducing 132
Coal production per week 170, 201, 287, 426
Coal, Proximate analysis of .....‡821
Coal, Pulverized, at Milwaukee, Excellent results with *556
Coal—Railway engineers meet at Chicago.. 473
Coal required for heating water.....‡101
Coal, Rhode Island 356
Coal—Safeguarding against shutdowns ... 569
Coal saved, How was the? 641
Coal saving by the scientific control of steam boiler plants. Brownlie 822, Edit. 815
Coal-saving record, Eastern New York power companies 826
Coal, Saving water and conserving. Carpenter 577
Coal—Secretary Daniels pleads for fuel economy 20
Coal—Sizes of anthracite 724
Coal, Smokeless furnace for volatile.....*857
Coal—Still a barbarian 640
Coal, successfully, Storing 248
Coal temperatures electrically, Checking stored. Poppe *674
Coal—The Chicago situation explained.... 422
Coal—The shortage outlook 95
Coal, The storage of bituminous. Anderson 321
Coal, The storage of soft. Abbott 176
Coal—The uptake damper. Bromley 601
Coal used when engine is on, Less..... 413
Coal—Utilization of fine grades of anthracite 143
Coal, Waste due to excessive noncombustible in. Shoudy *682, High ash content in coal 788
Coal—We must save that fifty million tons 536
Coal, *Why, what* and *how* we must save...*360
Coal—Will the saving continue?.....783, 855
Coal with a low sulphur content for storage purposes 308
Coal with scraper, Transferring..... *64
Coal workers, President's proclamation to.. 277
Coal—Would prohibit sale of liquor within five miles of mines 521
Coal, Zone system for. Boiler settings—multiple-retort underfeed stokers. Bromley *112, Regulations concerning clean coal 142
Coals as Generator Fuel, Water-Gas Manufacture with Central-District Bituminous. Odell, Dunkley .....†759
Coals, Fusibility of Ash from West Virginia. Selvig 566
Coals, Weights of various. Flagg .....†581
Cogwheels, Injury through exposed 152
Coil-winding form, Handy. Clement.....*130
Coils, Methods of insulating a.c. generator. Stephens *333
CoKal stoker, The *877
Cold accumulators and their application. Baars *31
Cold chisel, The. Lucas *838
Cole, Guarding the quality of coal *18, 19, Anthracite and bituminous efficiency.... 30
Coleman, Firing low-pressure boilers.... 837
Colvin, Aircraft Mechanics' Handbook....†183
Combustion—Burning the low-grade coal of Iowa. Marsh. *940
Combustion control meter *599
Combustion Engineering Corporation—Stoker installations as agencies in coal and iron conservation 602
Combustion from appearance, Judging completeness of .....‡609
Combustion—Fuel and its economical use. Uehling 779, Combustion in its relation to boilers 804, Meters and gages in boiler operation 842, Controlling efficiency of combustion 921
Combustion—Fuel economy made simple. Bement 524, How was the coal saved?.. 641
Combustion in Fuel Beds of Hand-Fired Furnaces, Low-Rate. Kreisinger, Augustine, Katz 576
Combustion of pulverized fuel, Spontaneous 500
Combustion, The rate of..... 782
Combustion—What percentage of CO_2 can be obtained? 956
Combustion with chain grates, Smokeless. Marsh 544
Commonwealth Edison Co.'s power-station organization chart *164
Commutator insulation to fail, Bearing oil caused 23
Commutator slotter, Aurand *880
Commutators, Wiping 573, 717, 754
Compression, Ammonia. See "Ammonia," "Refrigeration."
Compression, Purposes of .....‡175
Compressor, Air. See "Air."
Concrete, Effect of salt on reinforced..... 899
Concrete saves steel in power plant, Reinforced 846
Condensate from exhaust heating apparatus, Returning .....‡137
Condensation tests for the plant 458

CONDENSER, AMMONIA
See also "Refrigeration."
—Block condenser improved.....*803
—Improving efficiency of ammonia condensers. Herter *952

CONDENSER, STEAM
—Absolute pressure in condenser .....‡467
—Air occluders for use with condensers..*458
—Barometric condenser conditions, Ideal. Keech *881
—Cleaning surface condensers 644
—Condensers and condenser engineering practice. Pendleton. I 720, II..... 756
—Electrolysis of condenser tubes 546
—Government restricts sale of surface condensers 438
—Keeping up condenser performance. Smith *868
—Recent developments in condensers. Morgan *434
—Save condenser tubes 676
—Second-hand condenser overhauled *98
—Vacuum breaker with surface condenser.‡137
Conduct, All-around blundering. Jahobart. 568, 606, 717
Connecting-rod straps, Thickened ends of..‡317
Conradson, Internal-combustion engine lubrication and lubricants 107, Emulsification of mineral lubricating oils *149
Conservation, Safety and. Snyder.....*477
Consumers' Power Co. — Junction Development power plant *258
Contrast of temperaments, A—Purposeful anecdotes *75
Conveyor, Brady steam-jet ash *201
Conveyor, Godfrey coal handling.....*766

Page

Conveyor improvements, Suggested steam-jet ash 209
Conveyors—Storing coal at Mooseheart, Ill. *76
Conveyors — Using hogged mill refuse as fuel *79
Cook, Steel Shipbuilders' Handbook ..... †653
Cooler, Multiwhirl oil *489
Cooper Union—Fuel meeting in New York. 545
Copper articles, Silvering brass and 510
Coppus turbo blower, New *382
Corbett, F. J., Death of 73
Cordes, P. H., Death of 725
Cost Accounting for Factories, Bookkeeping and, Kent ..... †255
Counter-electromotive force of motors. Elec. study course *155
Court decisions. Street and Sherlock 49, 54, 57, 79, 91, 94, 117, 152, 154, 163, 167, 201, 240, 278, 320, 336, 348, 350, 384, 388, 401, 559, 565, 593, 612, 625, (648, *701), 672, 765, 790, 887, 955, 970
Crane signals, Uniform *735
Cranes, Signal device for overloaded *23
Crank bearing wedges, Bolts in 680
Crank, Fastening a loose 21
Crankpin, Clearance between fillets and brasses of a 252
Crossboxes in water-tube boilers, Failure of *464
Croxton roundhouse coal, Handling *372
Crude-oil prices, Stabilizing 30
Cuban Mts., Oxyacetylene cutting job up in *537
Current regulation, Enameled resistance units for *626
Curves, Entropy-temperature, Berg *832
Cutter, Broken pliers used as pipe *466
Cutter, Handy packing 429
Cutter, Simple lacing *466
Cylinder, Counterbore of ..... †541
Cylinder-oil testing methods are needed, Better 640, 644, 751, 891
Cylinders, Lubrication of air-compressor, Callan 229
Cylindrical shells, Bursting and collapsing pressure of ..... ‡211
Cylindrical tanks, Volumes of, Ward *159

D

Dale, Boiler blowoff valves *565, Fish, Lewis *718, Wakeman, Simmons *818, Remark 926, Erends *963, Tube failure in water-tube boilers 942
Damper in position, Clamp to hold *961
Damper opening, Regulation of ..... †575
Damper supported on ball bearings *172
Damper, The uptake, Bromley 601
Dams, Aspects of 201
Dana, Gillette, Handbook of Mechanical and Electrical Cost Data ..... †617
Daniels pleads for fuel economy, Secretary. 20
Darling, Notes on Lignite—Its Characteristics and Utilization ..... †759
Davis, Renewing tubes, headers and baffles in water-tube boilers *584
Davis, Wallace, A Convenient Multiple-Unit Calorimeter Installation ..... †475
Dayton, Ohio, New 25,000-kw. power plant for *620
Decker, Alarm to show fan trouble *909
Detroit boiler explosion injures four 757, McCabe *775, 784
Detroit turbine accident not serious 884
Diagram, A built-up indicator, Johnson *354
Diagram made after eccentric had slipped *786
Diagram of a boiler explosion *776
Diagrams, Diagnose these indicator *572, Diagnosis 677
Diagrams, Indicator, for discussion *754, 817
Diagrams, Unsymmetrical indicator *856
Diamond soot blower *2, *222, *305
Dickie, G. W., Death of 366
Diesel oil engines, Discussion of certain problems in regard to marine, Anderson. 966
Diesel operators from steam engineers, Making 816
Difficulties of plant inspectors similar to those of sanitary inspectors 274
Diman, Fuel economy in mill power plants 179
Direct-current watt-hour meters, Testing, Findley *947, 959
Directory of the American Association of Engineers ..... †511
Disk, Anti-oil-throwing *847
Dixon, Kinks in the handling of rope drives *57
Doughnut puncher, The, Hays *939
Douglas, Dr. J., Death of 35
Draft, Automatic control for forced *929
Draft gage, Finding chimney temperature by use of, Purcell *844
Draft gage, Use of differential ..... ‡895
Draft, Relation of, to the rate of combustion, Alt *801
Draft, Steam jet for forced vs. induced ..... ‡681
Draft tubes of turbine waterwheels *673
Drill extension, Home-made *100
Drilling holes in ceiling, Rig for *465
Drills, Lubricants for twist 739
Drums, The strength of winding, Watts *127
Dudley, Reconnecting induction motors for change in number of poles *271, Reversing an induction motor *502
Duffy, Watching the steam plant 390
Dunkley, Odell, Water-Gas Manufacture with Central-District Bituminous Coals as Generator Fuel ..... †750
Duriron centrifugal and reciprocating pumps *879
Dykenma, Recovery of Gasoline from Natural Gas by Compression and Refrigeration ..... †547

Page

Dyke's Automobile and Gasoline Engine Encyclopedia ..... †475

E

E-Z-Set sectional blowoff pipe sleeves *163
Earth connections, Power-station, Adams *40, Earthing power-station equipment *451
East, How best to educate power plant operators 683
Eccentric had slipped, Diagram made after *786
Eccentric, Measuring angle of advance of ‡65, Another method *315
Eccentric of link motion, Resetting slipped. ‡755
Eccentric—Too much oil causes heating *134
Economies, Worth-while 279
Economizer explodes at New Orleans Railway & Light Co.'s plant *165
Economizers, Cleaning deposit from *61
Economizers from the viewpoint of a designing and operating engineer, Lee *637
Economizers—Visits of Inspector Brown, Terman 153, *200, *231, 268, Criticism 313, Appreciation 429
Edge Moor soot blower *222
Edison Electric Illuminating Co.—Power-station organization chart *118
Edlich flow-indicating valve *836
Education—A suggestion 889
Education, Dr. Mann's report on engineering 646
Education, Question of industrial and technical 851
Efficiency by inspection and tests, Maintaining, Kammerman 876
Efficiency test for shunt motors, Simple—Elec. study course *913
Ehrhart, Maintenance of a proper heat balance *692
Elasticity, Modulus of 595

ELECTRICITY
See also "Rates," "Power plant" and cross references from it, etc. For hydro-electric plants see "Water power."

—Alarm devices, Two electric *463
—Alternating-current motor on an air compressor 893
—Alternator, Engine governor must control output of ..... ‡965
—American Inst. Elec. Engrs.—Atlantic City meeting 66, Paper *434, San Francisco Section 616, Industrial lighting as a war problem 792, Paper *832, Toronto meeting 861, Motor brushes for use in gritty surroundings 934
—Aurand commutator slotter *880
—Battery carbon brushes *210
—Bearing oil caused commutator insulation to fail 23
—British electrical industry, Cause of failure of 826
—Brushes were shifted 276
—Central Argentine Railway, Electrification of the *550
—Checking stored-coal temperatures electrically, Poppe *674
—Coils for small windings, Making, Clement *130
—Commutators, Wiping 573, 717, 754
—Conditions in the power industry, Schmidt 486, 798
—Connections for a.c. and d.c. service ..... *‡681
—Constancy of ratio of current transformer ..... ‡821
—Copperplating carbon brushes 63
—Current density in busbars ..... ‡821
—Devices for care of brushes and commutators *172, Wiping commutators 573
—Difference between a synchronous and an induction motor ..... ‡25
—Drying out electric motors 21
—Electric arc welding, Kinkead 791
—Electric thawing of frozen water pipe, Gifford 580
—Electrical developments for American Army, Tomlin *448
—Electrical Directory of Milwaukee 20
—Electrical reconstruction of France 391
—Electrically applied power in the industries 750
—Elevator-motor controls *634
—Enameled resistance units for current regulation *626
—Equalizer connection for compound generator ..... *‡397
—Estimating power requirements of a locality, Schmidt 55
—Exhibit of foreign electrical goods at New York 474
—Explosion of 2000-kw. generator 936
—Fires in turbo-generators 61
—Frequency changers operating in parallel, Load division between synchronous, Graham 520, *591
—Frequency in a.c. current, Critical value of ..... ‡859
—Frequency, Maintaining constant *90
—Fuses, Testing cartridge *282, Another fuse-testing board *754
—Generator at Philadelphia burns out, A 35,000-kv.a. 758
—Generator coils, Methods of insulating a.c., Stephens *333
—Generator, Erecting large vertical, Rea. *919
—Generator overcompounded, Parham 304
—Great Britain, Future electric-power supply for 16
—Handbook of Mechanical and Electrical Cost Data, Gillette, Lana ..... †61
—Head-band for battery light *5
—Heating of substations, von Fal[illegible]e 77

Page

—Hoists, Power-plant electric *664
—Induction motor, Reversing an *502
—Induction motor troubles, Fox I. 119, II. *385
—Induction motors for change in number of poles, Reconnecting, Dudley *271, Reversing an induction motor *502
—Kirchhoff's law, Practical application of, Kubanyi *878
—Lamp, Adjustable ceiling *23, Another *63
—Lamp cord, Adjustable extension *172
—Lamps lighted, Why test ..... *‡931
—Liberty Motor, Developing the 366
—Light and power on big scale 723
—Lincoln portable arc welder *635
—Link up power companies, Would 106
—Meeting an emergency 393
—Mica, Tool for undercutting *174, *500, *678
—Motor brushes for use in gritty surroundings 934
—Motor, Electric—Electrical study course. *84
—Motor field connection, Restoring a broken *499
—Motor should be run at rated speed ..... ‡931
—Motors in parallel or series, Operation of direct-current, Fox *666
—Muscle Shoals power line completed 34
—National Electrical Safety Code, Revision of 509
—New England power interconnection 545
—Niagara Falls, The army studies power needs at 177
—Number of poles of a.c. motor ..... ‡211
—Observations on current discharge across gap 463
—Oil-cooled transformer cases *238
—Oil rings magnetized *209
—Overload, An apparent 64
—Parallel operation of d.c. generators *99
—Peculiar wiring trouble 61
—Perfect ferrule and knife-blade fuses *375
—Plan for electrical energy in anthracite field of Penn. 216
—Plug, An emergency attachment 572
—Polarities of circuits without voltmeter, Methods of testing 464, 718
—Polarity of d.c. generators, Graham *10
—Polyphase induction reverse power relays. *298
—Potomac plant to increase output 323
—Power consumption of national industries, Schmidt 628
—Power equipment in foreign countries, American, Schmidt 874
—Power factor from the station operator's point of view, Wyss 807
—Power output of motors, Determining 358
—Power-station earth connections, Adams *40, Earthing power-station equipment. *451
—Price for electricity in Leeds, England 255
—Railroad electrification and water supply. 436
—Reasonable charge for off-peak electric current 275
—Reconnecting a 250-volt motor to operate on 110 volts *244
—Resistance used for starting various types of motors, Method for determining, Jones *740, 927
—Safeguarding high-voltage wires 49
—"Safety First" relay *12
—Signal device for overloaded cranes *23
—Silencing a noisy motor 64
—Simplified power-factor formula 207
—Soldering wire joints 173, 315
—South Africa, Electricity in extensive use in 216
—Static electricity from gasoline 244
—Steel switching cabinet *526
—Study course, Elec.—Armature reaction *13, Electric motor *84, Counter-electromotive force of motors *155, Types of motors *234, Motor-starting rheostats *299, Motor-speed control *418, Common faults in machine installation *493, Reversing rotation of motors *560, Faults in generators and motors —I. *631, II. *707, III. *767, IV. *848, Simple efficiency test for shunt motors *913
—Synchronizing, Trouble in 135
—Synchronous motor would act as brake. ‡433
—Temperature trip the circuit-breaker, Making 310
—Temperature was too high, Parham 270
—Testing d.-c. watt-hour meters, Findley *947, 959
—Testing outfit, Convenient *280
—Transformers, Outdoor water-cooled, von Fabrice *198
—Transforming from two-phase to three-phase ..... *‡965
—Turbine-driven alternator burned out *611
—Welding, Electric, in shipbuilding 826
—Welds, Inspection of electric, Eschholz *872

Electrolysis of condenser tubes 546
Elevator cable, One way of splicing *715
Elevator motor controls *634
Elliptic shaking and dumping grate bar, Thomas *485
Ellsworth, Putting an engine on the dock. 835
Emergency, Meeting an 393
Emergency Power Act, The 570, 579
Employer's duty to employee 336
Employment Bureau, Engineering Societies' 862
Employment—Dealing in America's greatest assets 937
Emulsification of mineral lubricating oils, Conrad on *649
Enameled resistance units for current regulation *626
Encyclopedia, Dyke's Automobile and Gasoline Engine ..... †475
Engineers, Free—Alas! Poor Garabed! 60
Engineers, Free, found! 640, 642
Engineers, Society of Automotive, Standardization 364
Engineers, Society of Naval Architects and Marine, Meeting 364
Engineers, Society of Naval Architects and Marine, Standardization 364
Engineers, Society of Naval Architects and Marine, Standardization 364
Engineers, Society of Naval Architects and Marine, Standardization

Page

ENGINE, INTERNAL-COMBUSTION

—Aircraft engine, Evolution of the..... 106
—Brake test of small gas engine .....*‡821
—Buckeye-Barrett oil engine *239
—Diesel Engine: Its Fuels and Its Uses. Haas .....†725
—Dyke's Automobile and Gasoline Engine Encyclopedia .....†475
—Gas-engine flywheel accident 62
—Gas engine injures four 617
—Gas-engine trouble, A puzzling. Gett.. 598
—"Gasteam" plant at Ford City, Ontario *186, Tar in gas producers 716
—Internal-combustion engine lubrication and lubricants. Conradson 107
—Jacket water, Independently driven circulating pumps for 238
—Low-compression oil engines, Some features of. Morrison I. *123, II. *196, III. *263, IV. *376, V. *455, VI.....*522
—Marine Diesel oil engines, Discussion of certain problems in regard to. Anderson 966
—Noisy gas-engine exhaust *716
—Piston with crank on quarter, Position of .....*‡931
—Placing engine on dead-center .....‡503
—Semi-Diesel oil engine, The. Morrison.. *47
—Tar in gas producers 716
—U. S. Navy Gas Engine School..... 475
Engine-room tools, Some handy *958

ENGINE, STEAM

See also "Piping," "Valve," "Piston," "Indicator," etc.
—Allowance for quality of steam supplied engine .....‡467
—Atmospheric pumping engine in England, Old 139
—Automatic engine stops, Greenwood ... 651
—Bent rocker on single valve engine, Use of .....‡503
—Coal used when engine is on, Less..... 413
—Compression depends on conditions, Best amount of .....‡895
—Corliss cutoff, Cause of failure of .....‡175
—Corliss cutoff with overload, Behavior of ‡175
—Corliss governor with single reach rod...‡175
—Correction as to engine economy 174
—Diagram made after eccentric had slipped..*786
—Direction for running engine belted to generator .....‡965
—Distribution of engine friction .....‡609
—Eccentric, Measuring angle of advance of ‡65, Another method *315
—Economy with shorter cutoff, Reason for less .....‡541
—Flywheel explosion at Chicago, Disastrous *516, 535, Did flywheel explode at normal speed? *752, 754
—Flywheel explosion at Hoquiam, Wash. .*957
—Governor "safety" was tripped 788
—Guards on engines 286
—Indicator diagrams, Diagnose these *572, Diagnosis 677
—Indicator diagrams for discussion *754, 817
—Indicator diagrams, Unsymmetrical *856
—Inferior economy of smaller engines....‡283
—Influence of liners on rod length.....*309
—Leakage shown by indicator diagram....‡101
—Piston becoming loose, Trouble from riveted .....‡719
—Piston made of boiler plate.....*537
—Piston with crank on quarter, Position of .....*‡931
—Placing engine on dead-center.....‡503
—Power developed by engine .....‡283
—Putting an engine on the dock, Ellsworth 835
—Reversing an engine that has a reversing rocker .....‡965
—Ridding engine cylinder of water.....*314
—Second-hand engine in bad shape..... 787
—Steam pipe line for engine .....‡467
—Torque, Methods of finding starting, Loomer *157
—Wear on crankpin of nonreversing engine 30

Engineer and owner, Value of reports in relations of 169
Engineer, Massachusetts' only licensed female *417, Death 581
Engineer, Semitechnical man may be a great 402
Engineer, Tempting the 854
Engineer, The superintendent and the, Prior 128
Engineer (?) wanted 100
"Engineer, Wanted—An," Strohm *795
Engineer, What is an? 714
Engineering applied to packing cases.... 254
Engineering Council seeks committee helpers 54, Engineering Societies' Employment Bureau 862
Engineering education, Dr. Mann's report on 646
"Engineering Practice," J. E. Aldred lectures on—Development of power from the standpoint of the boiler room, Hirshfeld *284, Bound copies of lectures....†827
Engineering principles enunciated many centuries ago 402
Engineering research, Ambrose Swasey gives $300,000 for 616
Engineer's vacation soliloquy, Perkins....*149
Engineers, See also "National," "American," "Association."
Engineers, Amer. Soc. of Mech.—Papers *18, 19, 26, 30, 102, 143, 177, 179, 180, 248, *253, *322, 403, *434, Meeting of Boiler Code Committee 181, Mechanical Section of Cleveland Engineering Society 581, Council meeting at Indianapolis 581, Meeting postponed 653, San Francisco section 616, Industrial lighting as a war problem 792, Annual meeting 793, 860, 900, Paper *832, New A. S. M. E. president *885, Possibilities in the power field 889, Central-station service or isolated plants for the industries 889, Paper *932, Chicago section view shellmaking 936, Paper 966, Boston section discusses power plant fuels 968
Engineers are helping, Where some older.. 603
Engineers are more stationary than others, Why some *257
Engineers, Making Diesel operators from steam 816
Engineers over the laws of nature, Powers of 694
Engineers, School for power-plant..... 367
Engineers toward boiler inspectors, Attitude of plant owners and, 391, 389, Appreciation 715
Eno, Mrs. Ello Gertrude, Death of..... 581
Enthusiasm, Haas 221
Entropy-temperature curves, Berg.....*832
Equipment, Acceptance of 79
Equipment, Buying 388
Equipment in foreign countries, American power, Schmidt 874
Equipment, Producer coal-handling *950
Erie Railroad—Handling roundhouse coal..*372
Eschholz, Inspection of electric welds..*872
Essington plant, New *593
Estimating power requirements of a locality, Schmidt 55
Eternal vigilance, Record breaking vs..... 639
Evans, I. N. Coöperation of public-service and isolated plants 88
Evans, Oliver, inventor and mechanic, Whitham *777
Evaporation of coal, oil and gas, Comparative 42
Evaporation tests show effect of cleaning boiler 396
Evaporation with steam 90 per cent. dry, Equivalent .....‡609
Everett, Purchasing a brine pump 53, Points in pump selection 446
Examining Board, Engineers protest 109
Exhaust, See "Steam," "Heat."
Explosion, See "Boiler," "Flywheel," "Turbine, steam," "Economizer," "Pump," "Piping," "Electricity," "Valve."

F

Faithful servant, A 21
Fan trouble, Alarm to show, Decker.....*909
Fares, Two companies increase 276
Feed, See "Water," "Boiler."
Feild, Hall, Fieldner, The fusibility of coal ash 792
Fellow, Helping the other 959
Fernald, Wyer, Availability of natural gas as fuel 180
Ferrochem feed-water treatment *739
Ferrule and knife-blade fuses, Perfect....*375
Fieldner, Hall, Feild, The fusibility of coal ash 792
Filters, Easily made oil *173
Filters, Oil, easily cleaned *962
Findley, Testing d.-c. watt-hour meters *947, 959
Fireman, Poster to the *30
Firemen, Better 356
Firemen's first lesson, The young.....*405
Fires in turbo-generators 61
Flagg, Weights of Various Coals .....†581
Flame, Color of, for efficient oil burning, 819, 961
Flange joint, A metal-to-metal.....*787
Flap-ring packing, Triangle *808
Float exert, What force does a?..... 775
Float, Hot-water tank and *135
Float pointers, Some *136, *358
Flood lands, Prescriptive right to 320
Floors, Surface treatment for dusty concrete 745
Flywheel accident, Gas-engine 62
Flywheel burst at New Rockford, N. D... 367
Flywheel explosion at Chicago, Disastrous *516, 535, Did flywheel explode at normal speed? *752, 754
Flywheel explosion at Hoquiam, Wash....*957
Force does a float exert, What?..... 775
Forced-draft burner, Palmer *387, Air above the fire 463
Forced-draft equipment, Operation of, Tutein 554
Ford City, Ontario, "Gasteam" plant at *186, Tar in gas producers 716
Foreign countries, American power equipment in, Schmidt 874
Forewords *1, *39, *75, *111, *149, *185, 221, *257, *291, *327, *371, *405, *441, *477, *515, *549, 583, *619, (Criticism 785) 655, *691, *727, *761, *795, *831, *867, *905 .....*939
Foundation, Settling of outboard bearing..‡397
Foundations in cold weather, Putting down concrete .....‡645
Fox, Induction motor troubles I 119, II *385, Operation of direct-current motors in parallel or series *666
Foxboro-Heath CO_2 recorder *946
Frames and bearings—Some features of low-compression oil engines, Morrison..*263
Free energy found! 640, 642
Frequency changers operating in parallel, Load division between s nchronous, Graham 520, *591
Frequency, Maintaining constar *90
Friction i of the coal pile, Morrison 129
Fuel, Se also "Coal," "Oil," c.

Page

Fuel Administration—Coal-distribution plan 34, Attitude toward the isolated plant 59 (letter 58), 174, Power-plant efficiency campaign 72, Profiteering in coal 73, Recommendations 92, Boiler settings—multiple-retort underfeed stokers, Bromley *112, Regulations concerning clean coal 142, Another fuel administrator plays the central station's game 168, Nothing else to the game 169, D. W. Cooke, fuel administrator for New York 182, Permit required for building new plant, etc. 215, Power unification and utilization in Illinois 250, Joseph Harrington administrative engineer for Illinois 252, 325, Examination of costs of coal mining 356, Those who will help conserve fuel *359, Fuel Facts 367, Great fuel saving in Connecticut 400, Limit on coal storage 400, Chicago situation explained 422, Bituminous coal and the possible saving 432, What about your plant rating? 462, Fuel regulations 471, Large saving of coal in power plants 474, Price allowances on emergency deliveries 474, Great win-the-war meeting 474, Revision of storage regulations 508, C. A. Graves, administrative engineer for New York State 511, Total coal saved as result of daylight-saving 574, Fuel oil and coal conservation meeting at Chicago 617, Increased storage authorized 652, Desires catalogs of dealers in power-plant accessories 686, The effort begins to bear fruit 714, Fuel saving by industrial plants 723, D. M. Myers' letter 751, Weekly letter plan to aid coal conservation in Illinois 757, The rate of combustion 782, Will the saving continue? 783, 855, Radiation losses from steam-heated surfaces 814, Shall the work of the U. S. Fuel Administration be continued? 815, Maximum price fixed for steam sizes of anthracite 827, Photograph *831, Boiler scale prevention 852, Chicago conservation meeting 864, Dr. Garfield resigns 865, Keep up the good work of the Fuel Administration..... 936
Fuel and its economical use, Uehling.. 779
Fuel, Availability of natural gas as, Fernald, Wyer 180
Fuel Beds of Hand-Fired Furnaces, Low-Rate Combustion in, Kreisinger, Augustine, Katz 576
Fuel changes, Problems involved in, Bement 380
Fuel—Combustion in its relation to boilers, Uehling 804
Fuel conservation, Chas. H. Garlick's circular on 183
Fuel conservation reports to the management, Worker 863, Edit. 854
Fuel-conservation suggestion 243
Fuel cost of heat and power, Rosencrants *712
Fuel, Discovery of a new..... 214
Fuel Economy in Boiler Rooms, Maujer and Bromley †653, Erratum 865
Fuel economy in mill power plants, Diman 179
Fuel economy in the Singer Bldg., King.. 710
Fuel economy made simple, Bement 524, How was the coal saved? 641
Fuel economy, Secretary Daniels pleads for 20
Fuel Facts 367
Fuel in short-hour service, Saving 750
Fuel is saved in a large school, How, Lane *954
Fuel meeting in New York 545
Fuel meeting, San Francisco has large..... 616
Fuel oil after the war 170
Fuel-oil burner, Ray *167
Fuel oil, Burning 97, 394
Fuel-oil conservation meeting at Chicago.. 684
Fuel Oil, Efficiency in the Use of, Wadsworth .....†725
Fuel oil, Preventing waste of, Strohm.. 636
Fuel oil situation, The, Bedford 177
Fuel oil, Waste of 569
Fuel, Possibilities of peat as 214
Fuel—Report of Committee on Automatic Heat Control 610
Fuel requirements of Canada for 1916, Total 957
Fuel—Saving coal at the mines, Thomas 879
Fuel-saving experience, A, Ball..... 659
Fuel saving in power plants 242, 249, Saving in office buildings and stores.... 356
Fuel saving in the home 403
Fuel situation in New England, Main.... 508
Fuel situation in Turin, Italy 216
Fuel tests, Interesting 624
Fuel, The new Liberty 885, 926
Fuel, Use of methane as a, Williams....*908
Fuel, Use of peat as 379
Fuel, Using hogged mill refuse as *79
Fuel waste *619, The boiler-room scales.. 785
Fulton Co.—The Sylphon oiler *837
Fumes and vapors, Poisonous, Sherlock.. 672
Furnace, See also "Boiler."
Furnace, Automatic air-controlled.....*883
Furnace—Automatic control for forced draft *929
Furnace construction, Bernitz.....*871
Furnace for volatile coal, Smokeless.....*857
Furnace, How To Improve the Hot-Air, Baker .....†71
Furnace—Palmer forced-draft burner *387, Air above the fire..... 463
Furnace—Stack dampers vs. ashpit doors. 193
Furnace—Steam-boiler regulation and control, Straub *442
Furnace system, Carrick.....*907
Furnace—Thomas elliptic shaking and dumping grate ba *485
Furnace walls, Pre ing clin ering of... 890

Page

Furnaces and boiler-furnace design, Boiler. Jacobus ... 318
Furnaces—Care of heating and ventilating equipment, Alt ... *736
Furnaces, Low-Rate Combustion in Fuel Beds of Hand-Fired. Kreisinger, Augustine, Katz ... 576
Furnaces, Smokeless ... 316
Furnaces, Staying cylindrical ... 358
Furr, Relative advantages of diagonal and horseshoe boiler patches ... *943
Fuses, Perfect ferrule and knife-blade ... *375
Fuses, Testing cartridge *282, Another fuse-testing board ... *754
Fusibility of Ash from West Virginia coals. Selvig ... 566
Fusibility of coal ash, The. Fieldner, Hall, Feild ... 792

G

Gage and water-column connections, Clearing ... *281
Gage connections, Wrong pressure *572, Reducing valve in wrong place ... 754
Gage-glasses, Cleaning ... *431
Gage-glasses, Pointers on the care of ... 607
Gage-glasses, Setting new ... ‡433
Gage on pop valve, Recording ... *929
Gages, Liability in case of bursting water. Sherlock ... 612
Gages, Meters and, in boiler operation. Uehling ... 842
Garabed, Alas! Poor ... 60, 356, 428
Gas engine. See "Engine, internal-combustion."

GAS, FLUE.

—CO_2 can be obtained? What percentage of. 956
—Flue-gas analysis, How to make a. Hays *796
—Foxboro-Heath CO_2 recorder ... *946
—Gases in Boiler Settings, Measuring the Temperature of ... †511
—Samples of flue gases, Obtaining ... ‡397

Gas formed in engine piston ... 281
Gas, Natural, as fuel, Availability of. Fernald, Wyer ... 180
Gas, Natural, Waste of, in Missouri and Kansas ... 803
Gaskets for steam-pipe lines. Schultes ... *8
Gasoline and its dangers. Gill ... 78
Gasoline costs and prices, Making study of ... 475
Gasoline from Natural Gas by Compression and Refrigeration, Recovery of. Dykenman †547 man ... †547
Gasoline, Save the 392, Gasoline shortage 497, Consumption of gasoline for the army and air service ... 812
Gasoline, Static electricity from ... 244
Gasoline tanks, Packing for glass gages on. ‡541
"Gasteam" plant at Ford City, Ontario *186, Tar in gas producers ... 716
Gauss, Graphic method of determining size of safety valve *414, Safe working pressure for steam boilers ... 772
G. E. polyphase induction reverse power relays *298, Steel switching cabinet *526, Enameled resistance units for current regulation ... *62(
Generator. See also "Electricity."
Generator at Philadelphia burns out. A 35,000-kv.-a. ... 758
Generator, Erecting a large vertical. Rea. *919
Generator overcompounded. Parham ... 304
Generators and motors, Faults in—Elec. study course. I *631, II *707, III *767, IV ... *848
Generators, Parallel operation of d.-c. ... *99
Generators, Polarity of d.-c. Graham ... *10
Genius contrasted, Skill and ... 546
Gentle baron, The tale of the ... 131
German silver, Manufacture of ... 616
Gett, A puzzling gas-engine trouble ... 598
Giant's task, The. Strohm ... *327
Gibson, "Better late than never" ... *371
Gifford, Electric thawing of frozen water pipe ... 580
Gill, Gasoline and its dangers ... 78
Gillette, Dana, Handbook of Mechanical and Electrical Cost Data ... †617
Gland nut, Slotted stuffing-box ... *429
Godfrey coal-handling conveyor ... *766
Governor dashpot position changed ... *243
Governor, Obtaining increase of speed with shaft ... ‡363
Governors, Throttling—Some features of low-compression oil engines, Morrison ... *376
Grab hook causes trouble, Loose ... *134
Graham, Polarity of d.-c. generators *10, Load division between synchronous frequency changers operating in parallel 520, *591
Graphite lubricator, Johnson ... *91
Graphite restrictions modified ... 722
Grate bar, Thomas elliptic shaking and dumping ... *485
Grate opening for coal burning, Proportion of ... †719
Grates, Smokeless combustion with chain, Marsh ... 544
Grease-cup caps, Straightening damaged ... *282
Grease trap, Oil and ... *608
Great Britain, Future electric-power supply for ... 166
Great Lake hydro-electric development of Tasmania, Schmidt ... *328
Greek Macedonia, Development of lignite mining in ... 324
Greenwood, Automatic engine stops ... 651
Griscom-Russell multiwhirl oil cooler ... *489
Ground caused boilers pitting ... 394
Guard, Elevated platform safety ... *209
Guards on engines ... 286

H

Page

Haas, A. L., Enthusiasm ... 221
Haas, H., The Diesel Engine: Its Fuels and Its Uses ... †725
Hall, Feild, Fieldner, The fusibility of coal ash ... 792
Hand-firing, Something about ... *50
Handling roundhouse coal ... *372
Harbottle, Valve-reseating device ... *731
Harrington, Joseph, administrative engineer for Illinois ... 252, 325
Hawkins, Changing power-plant shifts ... *202
Hawley, The Massachusetts plan of power-plant inspection and coal conservation ... 302
Hays, How to make a flue-gas analysis *796, The doughnut puncher ... *939
Heat, Always include the ... 395
Heat and power, Fuel cost of, Rosencrants ... *712
Heat balance, Maintenance of a proper. Ehrhart ... *692
Heat from bituminous coal and its absorption by the boiler, Generation of, Misostow ... *898
Heat given off by room occupants ... ‡247
Heat losses from pipes and boilers, The conservation of, Bagley ... *932
Heat obtainable from exhaust when it is dry, More ... ‡895
Heat outside the boiler room, Conserving ... 570
Heat prostration as "accident" ... 57
Heat value of solid fuels ... ‡755
Heat, What is meant by specific? ... 332
Heater arranged for two water services ... *571
Heater, Improvised feed-water ... *430
Heater, Instantaneous water *405, Another *677
Heater, Noiseless liquid ... *243
Heaters in ice plants, Feed-water, Azbe ... 526

HEATING AND VENTILATION

—Air, Outside vs. recirculated ... 884
—American Soc. Heating and Ventilating Engrs. *71, School opens 511, Report of Committee on Automatic Heat Control ... 610
—Care of heating and ventilating equipment Alt I 383, II 527, III *662, IV *736, V *801, VI ... *910
—Care of pneumatic temperature regulation systems ... 331
—Dripping one-pipe steam-heating systems, Baum ... *194
—Exhaust steam, Commercial value of, Ruck ... 614
—Exhaust-steam heating, Increasing back pressure for ... ‡645
—Exhaust steam of ventilating apparatus, Utilizing ... ‡397
—Faulty design in heating systems ... *855
—Heating and Ventilation, Allen, Walker. ‡217
—Heating of substations, von Fabrice ... 129
—Hot-water heating systems, Rules for. 580, 785
—Hot-water service from heating system ... *279
—How about the heating system? ... 497
—Pipe stoppages in new heating systems. 488, 608, 753
—Radiator connections ... *208, *501
—Underground pipe mains—Material depreciation, sizes for steam and water, Hubbard 80, Correction ... 316
Heating table, Air ... 616
Heating, Too much oil causes ... *134
Heating water with reduced pressure of steam ... ‡247
Helping the other fellow ... 959
Henderson, J. W., Death of ... 971
Here's your chance, Strohm ... *515
Herter, Throttling of ammonia 530, Improving efficiency of ammonia condensers. *952
Hight, Boiler-setting radiation and air leakage ... *953, 959
Hirshfeld, Development of power from the standpoint of the boiler room ... *284
Hogged mill refuse as fuel, Using ... *79
Hoists, Power-plant electric ... *664
Hole with tin foil, Stopped sand ... 97
Hook causes trouble, Loose grab ... *134
Hopley, The men who work unseen ... *691
Hoquiam, Wash., Flywheel explosion at ... *957
Horsepower-hours for month, Total ... ‡503
Horse sense, Second sight and ... 312, 465
Hot-water heating. See "Heating and Ventilation."
Hubbard, Underground pipe mains—Material, depreciation, sizes for steam and water 80, Correction ... 316
Huff, Boiler house as stack foundation ... *150
Human element in power plant efficiency, The, Azbe ... 583
Human power plant, The ... 311
Hurlbert, Mineral Oil Tables ... †653
Hydraulic jack, Cure for a "balky" ... *429
Hydro-electric. See "Water power."
Hydromatic vacuum trap, Swartwout ... *812
Hydrostatic lubricator regulation ... *430, 605

I

I-beam by rule of thumb, Safe load on, Carpenter ... 454
Ice breaker, New York has official ... 580
Ice in hydro-electric plants, Purcell ... 951
Ice plants, Feed-water heaters in, Azbe ... 526
Illinois, New appointments at the College of Engineering of the University of ... 475
Independence day, Strohm ... *1
Index to *Power* ... 60, 96
Indicator, A chance to win an ... 205, 207, 392, 604, 784
Indicator and recorder, Reservoir water-level ... *817
Indicator connection, Correcting ... ‡397
Indicator diagram, A built-up, Johnson ... *354
Indicator diagram, Percentage of clearance and cutoff from ... †789
Indicator diagrams, Diagnose these 572, Diagnosis ... 677

Page

Indicator diagrams for discussion ... *754, 817
Indicator diagrams, Unsymmetrical ... *856
Induction motor. See "Electricity."
Industrial management—Watch your step ... 133
Inefficient help, Troubles from ... 571
Injectors, Use of exhaust-steam ... 644, 753
Injuries caused by slippery floors, Sherlock ... 790
Injury by military guard ... 593
Injury through exposed cogwheels ... 152
Inspection and tests, Maintaining efficiency by, Kammerman ... 876
Inspector Brown, Visits of, Terman 153, *200, *231, 268, (Criticism 313), (Appreciation 429) ... *704
Inspector, Observations of a boiler ... 891
Inspectors similar to those of sanitary inspectors, Difficulties of plant ... 274
Instrument records strains ... 960
Integrity, Mechanical ... 241
International water softener ... *160
Iowa, Burning the low-grade coal of, Marsh ... *940
Iowa Railway & Light Co.—Cedar Rapids big steam plant ... *478
Iron conservation, Stoker installations as agencies in coal and ... 602
Iron pyrites in the coal ... 713
Iron, steel and nonferrous products ... †255

J

Jack, Cure for a "balky" hydraulic ... *429
Jacobus, Boiler furnaces and boiler-furnace design ... 318
Jahobart, All-around blundering conduct 508, 606, 717, Cleanliness and order in the plant 590, Would you give yourself a job? ... 655
James, Mackenzie, Principles of Mechanism ... †255
Job, Would you give yourself a? Jahobart. 655
Joerger, Modern power plant education ... *162
Johns Hopkins University, J. E. Aldred lectures at—Development of power from the standpoint of the boiler room, Hirshfeld *284, Bound copies of lectures ... †827
Johnson, A built-up indicator diagram ... *354
Johnson graphite lubricator ... *91
Joint, A metal-to-metal flange ... *787
Joint, Expansion—Alberger Pump and Condenser Co. ... 325
Joint, Quadruple-riveted—Visits of Inspector Brown, Terman ... *704
Joint, The new Van Stone ... *568
Jones automatic stoker, New ... *845
Jones, B. W., Method for determining resistance used for starting various types of motors ... *740, 927
Jones, J. P., Let's keep them on the run ... 459
Junction Development power plant ... *258

K

Kaley, Geo. O., Death of ... *864
Kammerman, Maintaining efficiency by inspection and tests ... 876
Katz, Diffusion of Oxygen Through Stored Coal †439, Low-Rate Combustion in Fuel Beds of Hand-Fired Furnaces ... 576
Keech, Ideal barometric condenser conditions ... *881
Kent, Wm., Bookkeeping and Cost Accounting for Factories ‡255, Death ... 475, *510
Kern, M. W., Death of ... 865
Key from motor pulley, Rig for drawing ... *135
King, Fuel economy in the Singer Bldg ... 710
Kingsport, Tenn.—Difficult boiler installation ... *607
Kinkead, Electric arc welding ... 791
Kinks—Fastening a loose crank 21, Some handy power-plant kinks *52, Kinks in the handling of rope drives, Dixon *57, Locating and removing bends *62, Handy kinks for the power plant *661, *746, Handy kinks worth knowing *813, Useful kinks for the power-plant engineer *858, Ideas for the power-plant engineer *894, Some kinks that are worth trying *930, Some handy engine-room tools ... *958
Kirchhoff's law, Practical application of, Kubanyi ... *878
Knife-blade fuses, Perfect ferrule and ... *375
Knock hunted for in bearings found in flywheel ... 195
Kreisinger, Augustine, Katz, Low-Rate Combustion in Fuel Beds of Hand-Fired Furnaces 576, Saving Coal in Boiler Plants. †581
Kubanyi, Practical application of Kirchhoff's law ... *878
Kuss, Coal conservation in the boiler room ... *322

L

Laboratories, Research Council wants information on ... 685
Lacing cutter, Simple ... *466
Ladders, Safety base for ... *781
Lamp, Adjustable ceiling *23, Another ... *63
Lane, How fuel is saved in a large school *954
Law, Court decisions, Street and Sherlock 49, 54, 57, 79, 91, 94, 117, 152, 154, 163, 167, 201, 240, 278, 320, 336, 348, 350, 384, 388, 401, 559, 565, 593, 612, 625, (648, *701), 672, 765, 790, 887, 955, 970
Law, Practical application of Kirchhoff's, Kubanyi ... *878
Leak in exhaust piping ... *22
Lectures on "Engineering Practice," J. E. Aldred—Development of power from the standpoint of the boiler room, Hirshfeld *284, Bound copies of lectures ... †827
Lee, Economizers from the viewpoint of a designing and operating engineer ... *637

Page

Lesson, The young firemen's first.....*405
Liberty fuel, The new.....885, 926
Licensed female engineer, Massachusetts' only *417, Death 581
Licensed, Should boilermakers be?..... 893
Licenses in Ontario, Graded 215
Light and power bonds, Seattle applies for approval of 288
Lights waste coal, Needless..... 638
Lignite mining in Greek Macedonia, Development of 324
Lignite, Notes on—Its Characteristics and Utilization, Darling .....†759
Lincoln portable arc welder.....*635
Liners on rod length, Influence of.....*309
Liquid heater, Noiseless.....*243
Literature for American marine engineers.. 498
Load division between synchronous frequency changers operating in parallel, Graham 520, *591
Load factor, Definition of.....‡575
Load on I-beam by rule of thumb, Safe, Carpenter 454
Locomotive deliveries 509
Locomotives, The Economical Use of Coal in Railway .....†759
Log sheets clean, Keeping..... 313
Loomor. Methods of finding starting torque *157
Los Angeles, Calif., Fuel Administration should aid 206
Lowrey. Reseating a globe valve.....*886
Lubricants for twist drills..... 739
Lubricants, Methods of testing 640, 644, 751, 891
Lubricating oils, Emulsification of mineral, Conradson *649
Lubricating the cylinder of a compressor, McLaren 786, Williams 788
Lubrication and lubricants, Internal-combustion engine, Conradson 107
Lubrication of air-compressor cylinders, Callan 229
Lubrication of wire rope 286
Lubrication—Some features of low-compression oil engines, Morrison *263
Lubricator, Care of sight-feed 680
Lubricator, Johnson graphite *91
Lubricator kinks, Handy *502, *927
Lubricator, Operation of double-connected cylinder .....*‡575
Lubricator regulation, Hydrostatic ..*430, 605
Lubricator, Trouble with cylinder .....‡931
Lucas. The cold chisel *838

M

McCabe. The Wadsworth boiler explosion at Detroit *775, 784
McCarren pumping station, Plan of *16
McGraw Central Station List.....†617
McNamara. Cutting out staybolts.....*122
Machine installation, Common faults in—Elec. study course *493
Machinery—Maintaining efficiency by inspection and tests, Kammerman 876
Mackenzie, James. Principles of Mechanism .....†255
MacMurchy. Care in the operation of small turbines 744
Main. Fuel situation in New England.... 508
Management, Fuel conservation reports to the. Worker 863, Edit. 854
Management, Industrial—Watch your step 133
Manhattan Building plant, Twenty-seven thousand dollar saving in 918, 925
Mann's, Dr., report on engineering education 646
Manufacturers, Private, vs. public utilities 955
Marine Diesel oil engines, Discussion of certain problems in regard to, Anderson.. 966
Marion Planet soot blower *6, *305
Marsh, Smokeless combustion with chain grates 544, Burning the low-grade coal of Iowa *940
Massachusetts plan of power-plant inspection and coal conservation, Hawley.. 302
Massachusetts' only licensed female engineer *417, Death 581
Maujer, Bromley, Fuel Economy in Boiler Rooms †653, Erratum 865
Mechanical and Electrical Cost Data, Handbook of, Gillette, Dana .....†617
Mechanical control of boiler-feed water. 675, *678
Mechanical integrity 241
Mechanical originality 277
Mechanical stoking—First patent and inventor 179
Mechanism, Principle of, James, Mackenzie †255
Meinzer, Making a pressure regulator more sensitive *820
Melco power plant, Handling coal at the..*945
Metal, Specification for white bearing.... 254
Meter, Combustion control *599
Meter, Improved Yarway V-notch *17
Meter, Large V-notch *917
Meter, Reading registration of water..*‡755
Meter, Yarway blowoff *532
Meters and gages in boiler operation, Uehling 842
Meters, Testing d.-c. watt-hour, Findley *947, 959
Methane as a fuel, Use of, Williams....*908
Meyers, Steam Turbines .....†653
Mica, Tool for undercutting *174, *500, *678
Michigan, Junction Development power plant *258
Mill refuse as fuel, Using hogged 79
Miller. Finding "lost" ammonia in refrigerating plants 734, Making a neglected refrigerating plant give capacity..... 810
Milwaukee, Excellent results with pulverized coal at .....

Page

Mineral lubricating oils, Emulsification of, Conradson *649
Mineral Oil Tables, Hurlbert.....†653
Mineral productions, America foremost in..216
Miners return to work in the coal fields, Aged retired 215
Miners warned of propaganda..... 366
Mines, Saving coal at the, Thomas..... 879
Misostow. Generation of heat from bituminous coal and its absorption by the boiler *898
Modulus of elasticity..... 595
Monarch soot blower.....*7, *305
Money in the boiler room, Saving 535, *542, 606
Monnett. Coal preparation and coal sizes. 108
Moore, F. R. Death of..... 903
Moosecheart, Ill., Storing coal at..... *76
Morgan. Recent developments in condensers *434
Morrison, E. S. Friction and the coal pile 129
Morrison, L. H. The semi-Diesel oil engine *47. Some features of low compression oil engines I *123, II *196, III *263, IV *376, V *455, VI.....*522
Motion picture to show methods of saving coal 826
Multiwhirl oil cooler *489
Municipal. See "Power plant."
Muscle Shoals power line completed..... 34

N

Narragansett Electric Lighting Co.—The 45,000-kw. compound turbine at Providence, R. I. Rigsby.....*292
Natl. Asso. Stationary Engrs.—Pennsylvania State convention 35, Delegates to the national convention *94, *182, 206, New England States convention *138, Convention at Cincinnati *212, 461, *468, Correction 316, Plants and places in Cincinnati *351, Paper 471, Ohio State convention 472, Fuel meeting in New York 545, Paper 614, Officers visited Huntington, W. Va. 759, John Oakley celebrates 90th birthday 862, Dinner to John J. Calahan 865, Visits of New Jersey N. A. S. E. 865, Paper.. 898
National industries, Power consumption of, Schmidt 628
National Safety Congress at St. Louis.... 509
National Safety Council pamphlet..... 46
New England, Fuel situation in, Main... 508
New England power interconnection..... 545
"New Idea" vise, Winans'..... *86
New Orleans Railway & Light Co.'s plant, Economizer explodes at *165
New York Municipal Civil Service examination 34
New York power concerns must specially incorporate 384
Niebling high-speed compressor.....*812
Nitrate plant nearing completion, Second. 348
Noiseless liquid heater.....*243
Norfolk, Va., Turbine-driven alternator burned out at.....*611
Northwest Station, Chicago, Turbine wreck at 242, 276, *345, 355
Numbers, Table of approximate..... 969
Nut, Slotted stuffing-box gland.....*429

O

Oakite waste cleaner.....*424
Occluders for use with condensers, Air...*458
Odell, Dunkley. Water-Gas Manufacture with Central-District Bituminous Coals as Generator Fuel .....†759
Odell, H. D. Home-made water-softening plant *728
Ohio Blower Co.—Swartwout hydromatic vacuum trap *812
Oil. See also "Lubrication," "Engine, internal-combustion."
Oil and grease trap.....*608
Oil and water separator, Home-made.....*606
Oil—Anti-oil-throwing disk *847
Oil burner, Ray fuel.....*167
Oil burning, Color of flame for efficient. 819 961
Oil, Burning fuel.....97, 394
Oil—Care of sight-feed lubricator..... 680
Oil caused commutator insulation to fail, Bearing 23
Oil causes heating, Too much.....*134
Oil-cooled transformer cases.....*238
Oil cooler, Multiwhirl.....*489
Oil engine. See "Engine, internal-combustion."
Oil extractor, Draining an.....*928
Oil filters easily cleaned.....*962
Oil filters, Easily made.....*173
Oil, Fuel, and crude oil not the same..... 951
Oil, Fuel, conservation meeting at Chicago 684
Oil Fuel, Efficiency in the use of, Wadsworth .....†725
Oil—Hydrostatic lubricator regulation. *430, 605
Oil, Large saving by re-use of.....*431
Oil, Preventing waste of fuel, Strohm... 636
Oil prices, Stabilizing crude 30
Oil—Railway Engineers meet at Chicago. 473
Oil rings magnetized.....*209
Oil saved per day, Two thousand barrels of 546
Oil separator, New *567
Oil situation, The fuel, Bedford..... 177
Oil supply and its use, The fuel..... 26
Oil Tables, Mineral, Hurlbert.....†653
Oil testing methods are needed, Better cylinder 0, 644, 751, 891
Oil transportation and conservation..... 104
Oil, Waste of fuel 569
Oil waste Stop 40

Page

Oil—When thieves fall out..... 215
Oiler, Sylphon *837
Oils, Emulsification of mineral lubricating, Conradson *649
O'Leary. Abuses of stokers..... 902
Ontario, Graded licenses in..... 215
Openings, Dangerous floor, Sherlock..... 401
Orders, Operating and repair..... 644
Orders to test subordinates..... 788
Originality, Mechanical 277
Orr. A nutty power plant..... 745
Owner, Value of reports in relations of engineer and 169
Oxyacetylene cutting job up in Cuban Mts. *537
Oxyacetylene torch, Repairs by *21
Oxygen Through Stored Coal, Diffusion of, Katz .....†439

P

Packing cases, Engineering applied to.... 254
Packing cutter, Handy..... 429
Packing, Triangle flap-ring.....*808
Paint for ropes and slings 492
Paint for stacks and boiler fronts 298
Painting power-plant apparatus distinctive colors, Reynolds 83
Palmer forced-draft burner *387. Air above the fire 463
Paper a duty, Saving..... 603
Paper supply, Conserve the 498
Parham. Temperature was too high 270, Generator overcompounded 304
Passing the buck, Strohm *111
Peat as fuel, Possibilities of..... 214
Peat as fuel, Use of..... 379
Peat, Treating, and forming it into briquets 825
Pendleton. Condensers and condenser engineering practice I 720, II..... 756
Pennsylvania Salt Mfg. Co., New plant of The *406
Penn. State College, Fire at..... 827
Perfect ferrule and knife-blade fuses....*375
Periodicals, Zone system of postal rates for 94, 96
Perkins. Engineer's vacation soliloquy..*149
Perpetual motion—Alas! Poor Garabed!. 60
Petroleum, Contributors to world's supply of 778
Petroleum stocks decrease 509
Petroleum, To stabilize price of..... 366

PIPING

—Airbound pipe lines, Trouble from....‡645
—Blowoff pipe for inspection, Opening in .136
—Blowoff pipes, Protecting 280
—Broken pliers used as pipe cutter.....*466
—Bursting feed water pipe causes panic.. 510
—Cement for closing leaks in iron pipe.. 298
—Closing the end of an inlet pipe.....*393
—Coating for steam pipes..... 298
—Discharge pipe, Explosions in pump.. 246
—Drainage of exhaust pipe.....‡175
—Dripping one-pipe steam-heating systems, Baum *194
—Duty in steam-pipe fitting..... 625
—E-Z-Set sectional blowoff pipe sleeves..*163
—Electric thawing of frozen water pipe, Gifford 580
—Explosion of steam pipe at Fort Worth, Texas 547
—Explosion of steam pipe at Memphis, Tenn. 687, 758
—Fittings, Conventional method of showing pipe *711
—Flange joint, A metal-to-metal.....*787
—Galvanized water-pipe line, Pinholes in.‡789
—Gaskets for steam-pipe lines, Schultes. *8
—Heat losses from pipes and boilers, The conservation of, Bagley *932
—Internal feed pipe scaled up..643, 787, 929
—Leak in exhaust piping..... *92
—Pipe hangers, Various types of.....*770
—Pipe stoppages in new heating systems. 488, 608, 753
—Pipe support or standard.....*753
—Piping layout was bungled.....*677
—Revision of pipe-thread standards..... 250
—Settling chamber in pipe line.....*855
—Steam-header pointers, Saller..... 806
—Stoppage, Peculiar case of pipe..... 282
—Twin strainers for suction pipe....*501, 605
—Underground pipe mains—Material, depreciation, sizes for steam and water, Hubbard 80, Correction 316
—Vapor relief from suction pipe.....*961
—Why you should insulate that bare pipe, Bromley 626
—Wonder pipe bender *669
Piston, Gas formed in engine..... 281
Piston made of boiler plate.....*537
Piston ring, Joint of.....‡467
Piston rings, Slapping noise made by....‡247
Piston-travel clearance and cylinder clearance .....‡363
Pistons and connecting rods—Some features of low-compression oil engines, Morrison *196
Pliers used as pipe cutter, Broken.....*466
Pneumatic temperature regulation systems, Care of 331
Poetry.....*1, *111, *327, *515, *691, *727, *905
Pointers, Promiscuous power-plant..... *24
Poisonous fumes and vapors, Sherlock.. 672
Polarity of d.-c. generators, Graham.... *10
Poppe, Checking stored-coal temperatures electrically .....‡374
Portland Railway, Light and Power Co.—Using hogged mill refuse as fuel..... *79
Positions for technical men..... 793
Poster to the fireman..... *30
Power as a burden on transportation.... 902
Power by using low-pressure turbine, Additional *553

Page

Power conditions, British report on..... 935
Power consumers. Discriminating between 348
Power consumption of national industries. Schmidt 628
Power equipment in foreign countries. American. Schmidt..... 874
Power-factor formula. Simplified..... 207
Power factor from the station operator's point of view. Wyss..... 807
Power field. Possibilities in the..... 889
Power. Fuel cost of heat and. Rosencrants *712
Power industry. Conditions in the. Schmidt 486, 798
Power planned. Increased 474

POWER PLANT
See also "Central station," "Water power," etc.
—Auxiliaries. Watch the. Prescott..... 460
—Belgian engineering plant destroyed by Germans 960
—Boiler inspectors. Attitude of plant owners and engineers toward 391, 389. Appreciation 715
—Bristol, Eng., to be extended. Electrical plant at 289
—Care and management of steam plants.. 799
—Cedar Rapids big steam plant.....*478
—Changes that saved coal. Remlieu.... 695
—Changing power-plant shifts. Hawkins.*202
—Cincinnati's new generating station *337. 25,000-kw. turbine damaged in new West End Station *425
—Cleanliness and order in the plant. Jahobart 590
—Columbia, Ala., New power plant at... 687
—Condensation tests for the plant..... 458
—Dayton, Ohio, New 25,000-kw. power plant for *620
—Difficulties of plant inspectors similar to those of sanitary inspectors..... 274
—Economies, Worth-while..... 279
—Equipped to use exhaust steam. Not properly 787
—Essington plant. New.....*593
—Fuel conservation reports to the management. Worker 863, Edit. 854
—Fuel economy in mill power plants. Diman 179
—Fuel saving in power plants 242, 249. Saving in office buildings and stores.. 356
—"Gasteam" plant at Ford City, Ontario *186. Tar in gas producers..... 716
—Government control of power plants.... 366
—Government to aid power plants..... 400
—Hoists. Power-plant electric.....*664
—How best to educate power plant operators. East..... 683
—How one plant was improved..... 357
—Human element in power plant efficiency. The. Azbe 583
—Human power plant. The..... 311
—Improving plant conditions. Blom..... *11
—Interconnecting to remedy some power-plant overload difficulties..... 784
—Junction Development power plant....*258
—Kinks. Some handy power-plant...*52, *661, *746, *858, *894
—Lorain, Ohio, resumed. Work on plant at 511
—Manhattan Building plant. Twenty-seven thousand dollar saving in.....918, 925
—Massachusetts plan of power-plant inspection and coal conservation. Hawley 302
—Melco power plant. Handling coal at the *945
—Milton, Penn., 4000-kw. power plant at. 510
—Modern power plant education. Joerger.*162
—Moosehcart, Ill., Storing coal at..... *76
—Morgantown, W. Va., Plans for electric light and power plant near..... 759
—Municipal lighting plants 19. Criticism. 282
—Night work. Why not change to?..... 355
—Now don't be foolish..... *291
—Nutty power plant, A. Orr 745
—Organization charts. Buffalo General Electric Co. *87
—Painting power-plant apparatus distinctive colors. Reynolds..... 83
—Pennsylvania Salt Mfg. Co., New plant of The *406
—Power-plant efficiency campaign..... 72
—Power plant generalities 607
—Power-station earth connections. Adams *40. Earthing power-station equipment *451
—Power-station organization charts *118, *164
—Private plant engineer and superpower station scheme 252
—Promiscuous power-plant pointers..... *24
—Rating. What about your plant?..... 462
—Reinforced concrete saves steel in power plant 846
—Report forms. Power-house.....*738
—Reserve capacity of a plant..... 537
—St. Anthony-Ashton Power Co.'s plant completed 104
—Saving Coal in Boiler Plants. Kreisinger.†581
—Saving of coal in power plants. Large. 471
—School for power-plant engineers..... 367
—Small plant saves much coal..... 572
—South China. The power-plant problem in. Wilson 747
—Superintendent and the engineer. The. Prior 128
—Tools for the power plant. Some handy.*555
—Troubles. Some power-plant. Sheehan.*882
—Watching the steam plant. Duffy..... 390
—Water-softening plant. Home-made. Odell *728
—West Penn Power Co. to erect $5,000,000 plant 402, 413

Power relays. Polyphase induction reverse.*298
Power required to feed a boiler..... 375
Power requirements of a locality. Estimating. Schmidt 55

Page

Power subscription rate for the present. No increase in 96
Power used by vacuum pumps..... 396
Prescott. Watch the auxiliaries 460. Setting the valves on duplex steam pump.. 531
Pressure and superheat. High steam. Berg.*832
Pressure-gage connections. Wrong *572. Reducing valve in wrong place..... 754
Pressure gage stopped. Pulsation in.....*208
Pressure regulator more sensitive. Making a. Meinzer *820
Pressure regulator. Tank *502
Prior. The superintendent and the engineer 128
Problems involved in fuel changes. Bement. 380
Producer coal-handling equipment.....*950
Providence, R. I., The 45,000-kw. compound turbine at. Rigsby.....*292
Prussian idea, The. Strohm.....*185
Pulley. Required size for governor driving. ‡65
Pulley. Rig for drawing key from motor..*135
Pulleys. Relations of diameters and speeds of .....‡719
Pulverized coal at Milwaukee. Excellent results with *556
Pulverized fuel. Spontaneous combustion of 500

PUMP
—Centrifugal pumps. Estimating capacity of .....‡137
—Cylinder clearance of direct-acting steam pump .....‡575
—Cylinder-lubricator pump. Correct location for 642
—Double ports of duplex steam pump...‡433
—Draining an oil extractor.....*928
—Duplex steam pumps. Setting the valves on. Prescott 531
—Duriron centrifugal and reciprocating pumps *879
—Economy of belt-driven vs. direct-steam feed pump .....‡681
—Emergency pump repairs *64
—Explosions in pump discharge pipe.... 246
—Falling weight opens valve *280
—Fuel-injection pump—Some features of low-compression oil engines. Morrison *455
—Governor. Dampening pulsations of pressure on pump.....‡283
—Improved pump-valve seat.....*715
—Increasing size of suction line reduces loss of pressure .....‡317
—Independently driven circulating pumps for jacket water 238
—Indicated horsepower required for pump.‡363
—Oil-line pump. New design of.....*627
—Packing water pistons of pumps..... 98
—Piston groaned *395
—Plunger. Required size of pump.....‡789
—Points in pump selection. Everett.... 446
—Power used by vacuum pumps..... 396
—Pulsation in pressure gage stopped....*208
—Pump trouble from air leakage of suction connections .....‡609
—Purchasing a brine pump. Everett.... 53
—Regulator. Belt-driven pump.....*892
—Repairs. Emergency pump.....*641
—Right-hand and left-hand side of pump.‡397
—Screen for suction line.....*98
—Settling chamber in pipe line.....*855
—Small pump strainer.....*63
—Starting pipe on pump discharge.....‡541
—Striking at both ends of duplex pump..‡609
—Valves. Improvement in pump.....*928
—Vapor relief from suction pipe.....*961
—Water-works pumps with high efficiencies *16
—Worn pump-valve arm repaired.....*785

Punches. Tools from broken belt.....*928
Purcell. Finding chimney temperature by use of draft gage *844. Ice in hydro-electric plants 951
Purchasing power equipment..... 240
Purposeful anecdotes *75, *371
Pyrites, Iron, in the coal..... 713
Pyrometers, Indicating and recording.....*600

Q

Quicklime. Use of, in breaking up heavy brick masonry 724

R

Radiation and air leakage. Boiler-setting. Hight *953, 959
Radiation losses from steam-heated surfaces 814
Radiator connections.....*208, *501
Railway engineers meet at Chicago..... 473
Rates for periodicals. Zone system of postal 94, 96
Rates—Municipal lighting plants 19. Criticism 282
Rates. One city for and two against increase in power and light..... 182
Rates. Will not increase light and power.. 324
Ray fuel-oil burner.....*167
Rea. Erecting a large vertical generator.*919
Reconnecting induction motors for change in number of poles. Dudley *271, Reversing an induction motor.....*502
Reconstruction 853
Record breaking vs. eternal vigilance..... 639
Recorder, Foxboro-Heath CO.....*946
Recorder, Reservoir water-level indicator and *817
Records strains. Instrument..... 960
Reed, A. M., Death of..... 865

REFRIGERATION
—American Soc. Refrig. Engrs.—New York Section 507. Paper *896. Annual meeting 809,

Page

REFRIGERATION—Continued.
—Ammonia condensers, Improving efficiency of. Herter *952
—Ammonia discharger for refrigerating plants *660
—Ammonia-piston clearance. Equalizing.. 537
—Ammonia-saving suggestion. An..... 250
—Ammonia, Throttling of. Herter 530
—Block condenser improved.....*803
—Cold accumulators and their application. Baars *31
—Cold storage capacity of the United Kingdom and of the U. S. compared. 724
—Compression system in practice, The low-temperature. Sloan *896
—Finding "lost" ammonia in refrigerating plants. Miller 734
—Food Administration urges conservation of ammonia *105
—Ice plants. Feed-water heaters in. Azbe.. 526
—Making a neglected refrigerating plant give capacity. Miller *810
—No ammonia put in refrigeration system since America entered the war.....*960
—Question for compressor operators to answer 24
—Recovery of Gasoline from Natural Gas by Compression and Refrigeration. Dykenma .....†547
—Refrigerating plant, intermediate depot for American Army in France. Tomlin *596
—Test taper for ammonia leaks.....*396

Reist, Self-adjusting spring thrust bearing *253
Relay, "Safety First".....*12
Relays, Polyphase induction reverse power *298
Remlieu. Power-plant changes that saved coal 695
Repair orders, Operating and 644
Repairs by oxyacetylene torch *21
Report forms. Power-house *738
Reports in relations of engineer and owner, Value of 169
Reports to the management, Fuel conservation. Worker 863, Edit. 854
Research Council wants information on laboratories 685
Reservoir water-level indicator and recorder *817
Resistance units for current regulation, Enameled *626
Reversing rotation of motors—Elec. study course *560
Reynolds, Painting power-plant apparatus distinctive colors 83
Rheostats, Motor-starting — Elec. study course *299
Rheostats, Motor-starting, — Elec. study
Rigsby, The 45,000-kw. compound turbine at Providence, R. I. *292
Risk assumed by fireman of a power plant. 91
Rivers, Measuring the volume of 287
Rivet, The American *946
Robinson John R. Triple-blade tube-hole cleaner *800
Rod length, Influence of liners on.....*309
Rope drives, Kinks in the handling of, Dixon *57
Ropes, slings and wire cables from decaying and rusting, Keeping 332
Rosencrants, Fuel cost of heat and power *712
Rough, Use him! Allen *727
Roundhouse coal, Handling *372
Ruck, Commercial value of exhaust steam. 614
Rule, Knowing the "why" of a 447
Rule of thumb, Safe load on I-beam by, Carpenter 454
Rusting of wire cables and ropes, Treatment for 492

S

Safeguarding against shutdowns 569
Safety and conservation, Snyder *477
Safety base for ladders *781
Safety Council pamphlet, National 46
"Safety First" relay *12
Safety guard, Elevated platform *209
Safety of welded headers on water-tube boilers 936
St. Paul, Explosion of 2000-kw. generator at 936
Salinometer, An emergency 510
Saller, Clinkering: Its causes and prevention 335, 501, Maintaining the accuracy of thermometers 601, Marking or altering blueprints 803, Steam-header pointers 806
Salt on reinforced concrete, Effect of.... 899
Saving by re-use of oil, Large *431
Saving money in the boiler room.....535, *542
Schmidt, Estimating power requirements of a locality 55, Great Lake hydro-electric development of Tasmania *328, Conditions in the power industry 486, 798, Power consumption of national industries 628, American power equipment in foreign countries 874
School for power-plant engineers 367
School, How fuel is saved in a large, Lane *954
Schultes, Gaskets for steam-pipe lines... *8
Schwenker, W. M.—Ammonia discharger for refrigerating plants *660
Scraper for transferring coal *64
Screenings now and store lump coal, Burn.. 60
Seattle applies for approval of light and power bonds 288
Second sight and horse sense 31, 465
Seed, Lieut. C. R., Death of 687
Self-hypnotism, An exampl of 131
Servi Fusibility of ash from West Vi
coals 566

Page

Semi-Diesel oil engine, The. Morrison... *47
Separator, Home-made oil and water..... *606
Separator, New oil *567
Servant, A faithful 21
Sewer, Do you watch the? Azbe..... 166
Shaft, Straightening a bent *963
Shafting, Laying out lines of *466
Shafting sizes, Standardization of 826
Shearer, Fundamental principles in the development of water power *563, Waterwheel types and settings *670, Principles of waterwheel design *732, Errata 819
Sheehan, Some power-plant troubles.... *882
Sherlock, Dangerous floor openings 401, Liability in case of bursting water gages 612, Liability in case of boiler explosions 648, Banger *701, Poisonous fumes and vapors 672, Injuries caused by slippery floors 790, Change of appliances 887
Ship—Instrument records strains 960
Shipbuilder's Handbook, Steel, Cook ..†653
Shipbuilding, Electric welding in 826
Shoudy, Waste due to excessive noncombustible in coal *682, High ash content in coal 788
Shutdowns, Safeguarding against 569
Siftings, Clearing windboxes of..... *857
Sight-feed lubricator, Care of 680
Signal device for overloaded cranes *23
Silvering brass and copper articles 510
Simms, C. F., Death of 827
Singer Bldg., Fuel economy in the, King.. 710
Siphon, Mystery of the 724
Skill and genius contrasted 546
Sloan, The low-temperature compression system in practice *896
Slotter, Aurand commutator *880
Smith, Keeping up condenser performance *868
Smoke Prevention Association holds convention at Newark, N. J. 398 (Errata 447), Boiler-room efficiency, Blackburn 437 (Errata 605), Spontaneous combustion of pulverized fuel 500, Smokeless combustion with chain grates, Marsh 544
Smokeless furnace for volatile coal *857
Smokeless furnaces 316
Snyder, Safety and conservation *477
Softener, International water *160
Soldering wire joints 173, 315
Soliloquy, Engineer's vacation, Perkins..*149
Soot blowers for horizontal water-tube boilers *2, Blowers for vertical and hollow stay-bolt boilers *222, Soot removal from fire-tube boilers *305
Soot cleaner, Saving due to 348
Soot cleaners—Cast iron at high temperatures *120
South China, The power-plant problem in, Wilson 747
Specific heat, What is meant by?..... 332
Speed control, Motor—Elec. study course..*418
Speeds obtained with train of gears, Computing ..... ‡503
Splicing elevator cable, One way of..... *715
Spoke reinforced, Broken *892
Stack, Advantages of brick lining for steel.‡503
Stack, Choosing height of ..... ‡247
Stack dampers vs. asphit doors 193
Stack draft reduced by neighboring hills..‡247
Stack foundation, Boiler house as, Huff..*150
"Stack gun" for cleaning chimneys 694
Stack's capacity for oil fuel..... ‡433
Standiford, Preventing explosions in waste-heat boiler settings 304
Stationary than others, Why some engineers are more *257
Staybolts, Cutting out, McNamara *122
Steam, See also "Boiler," "Engine," "Condenser," "Pump," "Piping," "Power plant," "Heating and ventilation," "Valve," "Turbine."
Steam appliances, Seller's warranty of.... 559
Steam, Approximate formula for total heat of ..... ‡363
Steam, Commercial value of exhaust, Ruck.614
Steam dome head, Maximum allowable working pressure for ..... ‡363
Steam engineers, Making Diesel operators from 816
Steam, Equivalent evaporation with superheated ..... ‡467
Steam exhaust as nuisance 117
Steam, Exhaust, in summer, Use for 521, Use of exhaust-steam injectors....644, 753
Steam, Exhaust, Not properly equipped to use 787
Steam-flow meter, Unreliable readings of.. *25
Steam for heating, Utilizing exhaust....‡931
Steam-header pointers, Saller 806
Steam heating, Advantages of pressure regulator for ..... ‡895
Steam-heating systems, Dripping one-pipe, Baum *194
Steam into steel stack, Turning exhaust..‡859
Steam-jet ash conveyor, Brady *201
Steam-jet ash-conveyor improvements, Suggested 209
Steam line in mine shaft ..... ‡317
Steam lost by escaping from safety valve..‡965
Steam more beneficial to simple engines, Superheated ..... ‡681
"Steam, Natural," turbine plant, A..... *935
Steam-power economics, British 723
Steam pressure and superheat, High, Berg *832
Steam pressure in steam-jacketed kettle, Effect of higher ..... ‡317
Steam required to melt ice ..... ‡317
Steam service reduced to equivalent boiler horsepower ..... ‡503
Steam supplied to engine, Testing superheat of ..... ‡609
Steam too low for throttling calorimeter, Quality of ..... ‡433
Steam whistle, Why the? 466

Page

Steel beam without shears, saw or torch, Shortening a 786
Steel in power plant, Reinforced concrete saves 846
Steel Shipbuilder's Handbook, Cook ....†653
Steel switching cabinet *526
Steinmetz, America's energy supply 364
Stephens, Methods of insulating a.-c. generator coils *333
Sterling four-way equalizing plug valve..*519
Stets boiler-feed controller—Correction ... 240
Stoker—Boiler-room efficiency 605
Stoker, Brady traveling-grate *166
Stoker—Clearing windboxes of siftings.. *857
Stoker installations as agencies in coal and iron conservation 602
Stoker M'f'rs. Ass'n. 474, 724
Stoker, New Jones automatic *845
Stoker, The CoKal *877
Stokers, Abuses of, O'Leary 902
Stokers, Boiler settings—multiple-retort underfeed, Bromley *112
Stokers for low grades of fuel, Advantages of mechanical ..... ‡283
Stokers—Improving plant conditions, Blom. *11
Strainer to go into body of old gate valve. *98
Strainers for suction pipe, Twin....*501 605
Strains, Instrument records 960
Straub, Steam-boiler regulation and control *442, Development of steam-boiler baffles *656, Systematic boiler-room operation *923
Street, Court decisions 49, 54, 57, 79, 91, 94, 117, 152, 154, 163, 167, 201, 240, 278, 320, 336, 348, 350, 384, 388, 559, 565, 593, 625, 765, 955, 970
Strohm, Independence day *1, Passing the buck *111, The Prussian idea *185, The giant's task *327, Here's your chance *515, Preventing waste of fuel oil 636, Boiler and Furnace Testing †725, "Wanted—An engineer" *795
Stud hold, Making a loose 580
Study course, Elec.—Armature reaction *13, Electric motor *84, Counter-electromotive force of motors *155, Type of motors *234, Motor-starting rheostats *299, Motor-speed control *418, Common faults in machine installation *493, Reversing rotation of motors *560, Faults in generators and motors—I *631, II *707, III *767, IV *848, Simple efficiency test for shunt motors *913
Stuffing-box gland nut, Slotted *429
Subordinates, Orders to test 788
Substations, Heating of, von Fabrice..... 129
Substitutes, Making the most of 312
Suggestion, A 889
Summer current, Purchasing 918, 925
Summerscales new oil separator *567
Superheat, High steam pressure and, Berg. *832
Superintendent and the engineer, The, Prior 128
Surface treatment for dusty concrete floors 745
Swartwout hydromatic vacuum trap *812
Swasey, Ambrose, gives $300,000 for engineering research 616
Switchboard in war time, At the, Braley. *905
Switching cabinet, Steel *526
Sylphon oiler *837
Szabo, Finding the contents of a horizontal cylindrical tank *266, Chart for finding factor of evaporation *702

T

Table, Air heating 616
Table—Horsepower used per wage earner in various industries during 1914 628
Table of approximate numbers 969
Table of B.t.u.'s per boiler horsepower at various officiencies, Bromley 46, Errors in table and chart for estimating fuel requirements *538
Tables, Mineral Oil, Hurlbert ..... †653
Tale of the gentle baron 131
Tallmadge, Avoiding distortion in turbine operation *762
Tank and float, Hot-water *135
Tank fills, Valve automatically closes when. *62
Tank, Finding the contents of a horizontal cylindrical, Szabo *266
Tank pointers, Blowoff *313
Tank-pressure regulator *502
Tanks, Buried storage *540
Tanks, Volumes of cylindrical, Ward *159
Task, The giant's, Strohm *327
Tasmania, Great Lake hydro-electric development of, Schmidt *328
Taylor, Need and value of boiler inspection 389, 391, Appreciation 715
Teamplay has come to stay 206
Technical men, Positions for 793
Temperaments, A contrast of—Purposeful anecdotes *75
Temperature by use of draft gage, Finding chimney, Purcell *844
Temperature compression system in practice, The low, Sloan *896
Temperature of Gases in Boiler Settings, Measuring the ..... †511
Temperature on circular chart, Representing average ..... ‡317
Temperature regulation systems, Care of pneumatic 331
Temperature trip the circuit-breaker, Making 310
Temperature was too high, Parham 270
Temperatures, Cast iron at high *120
Temperatures electrically, Checking stored-coal, Poppe *674
Tempting the engineer 854
Terman, Visits of Inspector Brown 153, *200, *231, 268, (Criticism 313), (Appreciation 429), ... *704

Page

Test for shunt motors, Simple efficiency—Elec. study course *913
Test subordinates, Orders to 788
Test taper for ammonia leaks *396
Testing d.-c. watt-hour meters, Findley *947, 959
Testing methods are needed, Better cylinder-oil 640, 644, 751, 891
Testing outfit, Convenient *280
Tests, Interesting fuel 624
Tests, Maintaining efficiency by inspection and, Kammerman 876
Tests show effect of cleaning boiler, Evaporation 396
Thermometers, Maintaining the accuracy of, Saller 601
Thomas elliptic-shaking and dumping grate bar *485
Thomas, Saving coal at the mines..... 879
Thread, Flat top and bottom of U. S. standard 712
Thumb, Safe load on I-beam by rule of, Carpenter 454
Tighteners, Trouble with belt *856, Discussion 963
Tin, Conservation of 108
Tin foil, Stopped sand hole with 97
Tomlin, Electrical developments for American Army *448, Refrigerating plant, intermediate depot for American Army in France *596
Tool, An emergency valve-grinding *886
Tool Useful combination *870
Tools for the power plant, Some handy.. *555
Tools from broken belt punches *928
Tools, Some handy engine-room *958
Torque, Methods of finding starting, Loomer *157
Transformer cases, Oil-cooled *238
Transformer exploded at Lyons, N. Y..... 687
Transformers, Outdoor water-cooled, von Fabrice *198
Transmission—Muscle Shoals power line completed 34
Transportation, Power as a burden on 902
Trap, Oil and grease *608
Trap, Swartwout hydromatic vacuum *812
Triangle flap-ring packing *808
Trill Indicator Co.—A chance to win an indicator 205, 207, 392, 604, 784
Triple-blade tube-hole cleaner *800
Trouble with belt tighteners *856, Discussion 963
Troubleman, Refrigerating—Finding "lost" ammonia in refrigerating plants, Miller. 734
Troubles from inefficient help 571
Tube, Boiler, See "Boiler."
Tubes of turbine waterwheels, Draft..... *673

TURBINE, STEAM

—Accidents, More turbine 816
—Care in the operation of small turbines, MacMurchy 744
—Corrosion of turbine blades 644
—Detroit turbine accident not serious 884
—Distortion in turbine operation, Avoiding, Tallmadge *762
—Gorge power-plant turbine wrecked 139, *203, 205
—Governor dashpot position changed.... *243
—High steam pressure and superheat, Berg *832
—Increased power planned at Baltimore, Md. 474
—"Natural steam" turbine plant, A..... *935
—New turbine at W. Va. Traction & Electric Co. 344
—Power by using low-pressure turbine, Additional *533
—Providence, R. I., The 45,000-kw. compound turbine at. Rigsby *292
—Sealing water for turbine glands *571
—Steam-turbine failures 355, 345
—Steam Turbines, Meyers ..... †653
—Turbine-driven alternator burned out .. *611
—War Industries Board takes charge of turbine plants 759
—West End Station, 25,000-kw. turbine damaged in new *425
—Wreck at Northwest Station, Chicago 242, 276, *345, 355
—Wreck of steam turbine 182

Turbo blower, Carling *774
Turbo blower, New Coppus *382
Turbo-generator, A large 324
Turbo-generators, Fires in 61
Turin, Italy, Fuel situation in 216
Tutein, Efficient boiler operation 336, Operation of forced-draft equipment.... 554

U

Uehling, Fuel and its economical use 779, Combustion in its relation to boilers 804, Meters and gages in boiler operation 842, Controlling efficiency of combustion 921
Under-Feed Stoker Co. of America—New Jones automatic stoker *845
Union Electric Light & Power Co., St. Louis, Mo.—Boiler house as stack foundation, Huff *150
Union Gas & Electric Co.—Cincinnati's new generating station *337, 25,000-kw. turbine damaged in new West End Station.. *425
Universal Craftsmen convention at Detroit. *288
Use him rough! Allen *727

V

V-notch meter, Improved Yarway *17
V-notch meter, Large *917
Vacation soliloquy, Engineer's, Perkins.. *149
Vacuum trap, Swartwout hydromatic *812

Page

VALVE
—Blowoff valves, Boiler. Dale *565, Fish, Lewis *718, Wakeman, Simmons *818, Remark 926, Erends *963
—Cast brass valve seats porous 785
—Check valves from hammering, Keeping. 499
—Corliss-engine valves, Reasons for putting lap on ‡137, Discussion *643
—Corliss valves and seats, To reduce cutting of ..... ‡681
—Cutting of valves and seats..... ‡681
—Edlich flow-indicating valve *836
—Exhaust port opening of D slide valve.. ‡247
—Exhaust valves of double-eccentric engine, Setting ..... ‡719
—Explosion of valve in boiler room 937
—Extension for valve stem *678
—Falling weight opens valve *280
—Four-way equalizing plug valve *519
—Globe valve, Reseating a. Lowrey *886
—Graphic method of determining size of safety valve. Gauss *414
—Lap of valve and greatest port opening.. ‡137
—Location of back-pressure relief valve.. ‡137
—Loose grab-hook causes trouble *134
—Packing, packless, automatic air and air-line valves. Alt *910
—Pop valve, Recording gage on *929
—Pressure regulator more sensitive, Making a. Meinzer *820
—Pump valves, Improvement in *928
—Reducing valve in wrong place 754
—Safety valve for compressed-air tank.... ‡247
—Safety-valve formula. Derivation of a.. ‡575
—Safety valve, Pop and blowdown of.... ‡101
—Safety valve, Weight required for ..... ‡283
—Setting D slide valve ..... ‡25
—Setting link-motion valve gear ..... ‡503
—Setting the valves on duplex steam pumps. Prescott 531
—Slamming of Corliss valves ‡101, Snifter valves to prevent slamming *464
—Stopped sand hole with tin foil 97
—Valve automatically closes when tank fills *62
—Valve-reseating device. Harbottle *731
—Valve-stem extension *100

Van Stone joint, The new *568
Vapor relief from suction pipe *961
Vapors, Poisonous fumes and. Sherlock ... 672
Virginia Railway and Power Co.—Turbine-driven alternator burned out *611
Vise, Winans' "New Idea" *86
Visits of Inspector Brown. Terman 153, *200, *231, 268 (Criticism 313), (Appreciation 429) *704
Volumes of cylindrical tanks. Ward *159
von Fabrice. The heating of substations 129, Outdoor water-cooled transformers. *198
Vulcan Soot Cleaner Co.—Soot blower *4 *222, *305, Cast iron at high temperatures *120, Saving due to soot cleaner 348

W

Wadsworth. Efficiency in the Use of Oil Fuel ..... †725
Wadsworth Mfg. Co.—Boiler explosion in Detroit injures four 757, McCabe.. *775, 784
Walker, Allen. Heating and Ventilation .. †217
Wallace, Davis. A Convenient Multiple-Unit Calorimeter Installation ..... †475
"Wanted—An engineer." Strohm *795

WAR TOPICS
—After effects of the war 749
—Aircraft Mechanics' Handbook. Colvin. †183
—Air service needs men skilled in trades.. 613
—Ammunition factory at Plauen, Germany, damaged by fire 366
—An hour in which to be cautious 604
—Another Teutonic boomerang 604
—Army studies power needs at Niagara Falls 177
—Army wants refrigerating engineers 462
—At the switchboard in war time. Braley *905
—Back on the job *867
—Belgian engineering plant destroyed by Germans 960
—Belgium, National Bureau of Resumption of Economical Activities in 250
—Best day's work driving rivets 664
—Boiler plant. New marine..... 109
—Browning guns, New 20
—California power priority list 106
—Call for overseas mechanics 28
—Charleston-Nitro transmission line completed 139
—Chippewa Canal to yield 300,000 hp. .. 147
—Clean army as well as a brave one..... 713
—Coal mines in Pittsburgh district first to receive power 439
—Combustion engineers wanted 182
—Concentrate engineering talent and experimental facilities on the war 95
—Conditions in the power industry, Schmidt 486, 793
—Conserve the paper supply 493
—Cost of maintaining a soldier 519
—Creed for Americans 510
—Curtiss, Glenn H., inventor and builder of finest seaplanes 647
—Daylight, Saving coal by use of 612, "Daylight Saving" facts 724
—Dealing in America's greatest assets.... 937
—Drafted men inducted into the Navy.... 546
—Drafting mine workers reducing coal production 132
—Electrical developments for American Army, Tomlin *448
—Electrical reconstruction of France 391
—Emergency Power Act, The 570, 579
—Engineering educators discuss student shortage 72
—Engineers for war service ..... .
—Fast colors in patriotism 783
—Fifty million tons. We must save that.. 536

Page

WAR TOPICS—Continued.
—Food Administration urges conservation of ammonia *105
—For what shall it profit a man?..... 204
—Fuel Administration — Coal-distribution plan 34, Attitude toward the isolated plant 59 (letter 58), 174, Power-plant efficiency campaign 72, Profiteering in coal 73, Recommendations 92, Boiler settings—multiple - retort underfeed stokers, Bromley *112, Regulations concerning clean coal 142, Another fuel administrator plays the central station's game 168, Nothing else to the game 169, D. W. Cooke, fuel administrator for New York 182, Permit required for building new plant, etc. 215, Power unification and utilization in Illinois 250, Joseph Harrington, administrative engineer for Illinois 252, 325, Examination of costs of coal mining 356, Those who will help conserve fuel *359, Fuel Facts 367, Great fuel saving in Connecticut 400, Limit on coal storage 400, Chicago situation explained 422, Bituminous coal and the possible saving 432, What about your plant rating? 462, Fuel regulations 471, Large saving of coal in power plants 474, Price allowances on emergency deliveries 474, Great win-the-war meeting 474, Revision of storage regulations 508, C. A. Graves, administrative engineer for New York State 511, Total coal saved as result of daylight-saving 574, Fuel oil and coal conservation meeting at Chicago 617, Increased storage authorized 652, Desires catalogs of dealers in power-plant accessories 686, The effort begins to bear fruit 714, Fuel saving by industrial plants 723, D. M. Myers' letter 751, Weekly letter plan to aid coal conservation in Illinois 757, The rate of combustion 782, Will the saving continue? 783, 855, Radiation losses from steam-heated surfaces 814, Shall the work of the U. S. Fuel Administration be continued? 815, Maximum price fixed for steam sizes of anthracite 827, Photograph *831, Boiler scale prevention 852, Chicago conservation meeting 864, Dr. Garfield resigns 865, Keep up the good work of the Fuel Administration 936
—Fuel oil after the war..... 170
—Fuel-oil supply and its use..... 26
—Fuel-saving coöperation needed, Maximum 96
—Gasoline, Save the 392, The gasoline shortage 497, Consumption of gasoline for the army and air service... 812
—Government blank, Unusual *400
—Government control of power plants.... 366
—Government control of turbine industry. 182
—Government needs stenographers and typists 438
—Government restricts sale of surface condensers 438
—Government to aid power plants..... 400
—Government to take charge 241
—He didn't have to 392
—Hold-up men still at work 132
—Increase in number of vessels 17
—Independence day, Strohm *1
—Keep up the pressure *761
—Laundries in principal camps and cantonments 367
—Lens region much damaged 711
—Let there be no industrial slacking.... 278
—Liberty Loan, Fourth—Some of the bits your Liberty Bond will do 417, What your subscription means 426, The voice of Liberty 427, How every employer can help 428, "Fire Four" *441, Let's keep them on the run, Jones 459, Scene in Longueval village *460, The Fourth Liberty Loan 461, What six billions will do 496, A live wire *496, Here's your chance, Strohm *515, Letter slogan 531, President's appeal 534, Six billion dollars 536, One way we can help Russia 536, Great stuff to get steam up with *545, Cartoon *546, Foreword *549, American soldiers in France *559, Buy bonds despite German peace note 569, Liberate Austria's slaves 570, The supreme sacrifice *574, Twenty-four billion dollars 578
—Liberty Motor, Developing the 366
—Liberty, The voice of 427
—Lightless nights again 181, Saving by lightless nights 262, No infraction for Liberty Loan permitted 536, Lightless nights throughout the State 546
—Literature for American marine engineers 498
—Lorain, Ohio, resumed. Work on plant at. 511
—Mechanics needed at Fort Sam Houston, Texas 34
—Men who work unseen, The. Hopley .. *691
—Merchant Marine ships, Crews for 793
—Merchant vessels built in the U. S., etc.. 630
—Military problems awaiting improvement. 791
—Milton, Penn., 4000-kw. power plant at. 510
—National Safety Congress at St. Louis.. 509
—Needless lights waste coal 638
—New marine engineering school 33
—New steam-electric plant for shortage of power at Hog Island 147
—New York has official ice breaker 580
—Niagara power for war purposes 147
—Night work, Why not change to?..... 355
—Nonstrike agreement 96
—Number of plants and men in Pittsburgh engaged in war work, etc. 472

Page

WAR TOPICS—Continued.
—Number of sunken ships that have been salvaged 384
—Oil transportation and conservation ... 104
—Ordnance Dept. needs more men 287
—Overseas forces demand increasing gasoline supply 139
—Patent Office needs technically trained persons 183
—Pleads for recognition for engine-room help 60
—Poster to the fireman *30
—Potomac plant to increase output 323
—Power consumption of national industries, Schmidt 628
—Power curtailments in California 403
—Power-plant financing, To ask Congress for 147
—Power plants in Belgium and France ruined by the Hun 676
—President's proclamation to coal workers 277
—Providing homes for returned soldiers.. 438
—Railway engineers meet at Chicago 473
—Reconstruction 853
—Reconstruction after the war 639
—Record breaking vs. eternal vigilance.. 639
—Red Cross Christmas roll call, Remember the .....(886, 889), *888, 890
—Refrigerating plant, intermediate depot for American Army in France. Tomlin *596
—Safety and conservation. Snyder..... *477
—Save condenser tubes 676
—Save is to do without. The way to.... 95
—Saving paper a duty 603
—Secretary Daniels pleads for fuel economy 20
—Ship design and ship construction 509
—Shipping Board—Engineering School at Pratt Institute 182, Building 20 great ore carriers 402, Output 438, Big power project planned 608, Wants 2000 firemen at once for Merchant Marine 640, 652, College for Merchant Marine firemen 686
—Ships lack boilers and engines 105, Correction 174
—Shipyard's unparalleled record for July. 254
—Shortage outlook, The 95
—Signal Corps wants men for photographic work 251, Wants electrical engineers 579
—Still a barbarian 640
—Stoker manufacturers organize 474
—Submarines, Depth bombs used in hunting 758
—Substitutes, Making the most of..... 312
—Suggestion, A 889
—Survey parties needed by Construction Division of the Army 647
—Teamplay has come to stay 206
—"The war's over" folly 676
—Time for extreme caution, A 535
—Tin, Conservation of 108
—U. S. Navy Gas Engine School 475
—U. S. Navy Steam Engineering School.. 826
—U. S. School Garden Army 724
—Vocational Education for Disabled Soldiers ..... ‡35
—War bars extension of lighting plant.... 388
—War Dept. centralizes purchasing control 251
—War Industries Board requires increased production of coal and steel 324, Takes charge of turbine plants 759
—War profits tax and excess profits tax.. 615
—War savers are life savers 509
—W. S. S. cartoon *39, Don't let up on buying War Savings Stamps 926
—Waster of coal, Making an impression on the 714
—Watch officers 73
—Water supply at the front 424, 474
—West Penn Power Co. to erect $5,000,000 plant 402, 413
—Westinghouse Electric Co. awarded contracts for generators on Neville Island 403
—Where some older engineers are helping. 603
—*Why, what* and *how* we must save coal *360
—Win-the-war meeting held by waterworks men 470
—Zone system—Boiler settings—multiple retort underfeed stokers. Bromley *112. Regulations concerning clean coal 142

Ward. Volumes of cylindrical tanks *159
Warren Clock Co.—Maintaining constant frequency *90
Washington, Water shortage threatened at. 33
Waste cleaner, Oakite *424
Waster of coal, Making an impression on the 714
Watch your step 133
Water and conserving coal, Saving. Carpenter 577
Water, Apparatus necessary for testing.... *729
Water as the operating engineer should know them. A few facts about. Bromley *906
Water-column connections, Clearing gage and *281
Water column, Pocket in steam connection to *818
Water discharged through orifice ..... ‡859
Water for turbine glands, Sealing..... *571
Water-Gas Manufacture with Central-District Bituminous Coals as Generator Fuel, Odell, Dunkley ..... †759
Water heater, Feed—Improving plant conditions. Blom *11
Water heater, Improvised feed *430
Water heater, Instantaneous *465, Another *677
Water heating systems. Rules for hot. 580, 785
Water heaters in ice plants, Feed. Azbe.. 526

Page

Water, Independently driven circulating pumps for jacket 238
Water, Injection of—Some features of low-compression oil engines. Morrison *522
Wator level, Different 573, 786
Water-level indicator and recorder, Reservoir *817
Water—Measuring the volume of rivers.. 287
Water, Mechanical control of boiler-feed 675, *678
Water meter, Reading registration of ..*‡755

WATER POWER
—Administration water-power bill 140
—America's energy supply. Steinmetz .. 364
—California power priority list 106
—Discrepancy in water power reports 216
—Draft tubes of turbine waterwheels... *673
—Fundamental principles in the development of water power. Shearer *563, Errata 819
—Great Lake hydro-electric development of Tasmania. Schmidt *328
—Henry Ford will invest millions in developing water power 375
—High-tension lines completed 72
—Ice in hydro-electric plants. Purcell .. 951
—Junction Development power plant ... *258
—Niagara River urged, Electric power development in lower 788
—Norway waterfalls, Development of ... 107
—Peru, Ind., Water power for 147
—Pittsburgh to get water power 213
—Railroad electrification and water supply 436
—Small power obtained from low fall.... ‡931
—Utilization of water power in Italy.... 73
—Washington Water Power Co.'s valuation 179
—Water power in the State of Washington 17
—Water power rights 163, 350
—Water Rights Determination. Whitham.. †653
—Waterwheel types and settings. Shearer *670, Principles of waterwheel design *732, Errata 819
—Waterwheels, Loss of power in 246
Water, Saving by higher temperature of feed ..... ‡541

Page

Water separator, Home-made oil and *606
Water service from heating system, Hot.. *279
Water shortage threatened at Washington. 33
Water softener, International *160
Water-softening plant, Home-made. Odell.. *728
Water supply for bearings, Emergency.... 430
Water tank and float, Hot *135
Water treatment, Ferrochem feed *739
Waterwheel, Little power obtainable from current ..... ‡467
Waterwheels, Draft tubes of turbine *673
Waterwheel, Lost of power in 246
Waterwheels—Types and settings. Shearer *670, Principles of design *732, Errata 819
Water-works pumps with high efficiencies.. *16
Watson. Automatic whistle-blowing rig .. *426
Watt-hour meters, Testing d.-c.. Findley *947, 959
Watts. The strength of winding drums.. *127
Wedges, Bolts in crank bearing 680
Welded headers on water-tube boilers, Safety of 936
Welder, Lincoln portable arc *635
Welding boiler plate, Are there advantages in? Boyd *504
Welding, Electric arc. Kinkead 791
Welding, Electric, in shipbuilding 826
Welding job, A difficult 912
Welds, Inspection of electric. Eschholz.. *872
West End Station—Cincinnati's new generating station *337, 25,000-kw. turbine damaged *425
West Penn Power Co. to erect $5,000,000 plant 402, 413
West Virginia coals, Fusibility of ash from. Selvig 566
Westinghouse Elec. & Mfg. Co.—"Safety First" relay *12, Oil-cooled transformer cases *238, Making temperature trip the circuit-breaker 310, Awarded contracts for generators on Neville Island 403, Additional power by using low-pressure turbine *533, New Essington plant *593, Elevator-motor controls *634, New Westinghouse Research Bldg. 723, Westinghouse marine works will expand... 969

Page

Whistle-blowing rig, Automatic. Watson.. *426
Whistle, Why the steam? 466
White bearing metal, Specifications for .. 254
Whitham. Water Rights Determination †653, Oliver Evans inventor and mechanic *777
Who does better? *540, *716
"Why" of a rule, Knowing the 447
Wickes, E. A., Death of 903
Williams. Use of methane as a fuel.... *908
Wilson, H. B. The power-plant problem in South China 747
Wilson, S. F. A contrast of temperaments *75
Winans' "New Idea" vise *86
Windboxes of siftings, Clearing *857
Winding drums, The strength of. Watts. *127
Wire cutter, A powerful *641
Wire rope, Lubrication of 286
Wire take-up devices, Four. Bertrande .. *696
Wiring trouble, Peculiar 61
Wonder pipe bender *669
Woolson, Orosco C. E-Z-Set sectional blow-off pipe sleeves *163
Worker. Fuel conservation reports to the management 863, Edit. 854
Worthington Pump & Machinery Corp.—New design of oil-line pump *627
Would you give yourself a job? Jahobart. 655
Wright Brothers first masters of aircraft. 595
Wyer, Fernald. Availability of natural gas as fuel 180
Wyss. Power factor from the station operator's point of view 807

Y

Yale & Towne Mfg. Co.—Power-plant electric hoists *664
Yarnall-Waring Co.—Improved Yarway V-notch meter *17, Yarway blowoff meter *532

Z

Zone system for coal. Boiler settings—multiple-retort underfeed stokers. Bromley *112, Regulations concerning clean coal 142
Zone system of postal rates for periodicals 94, 96